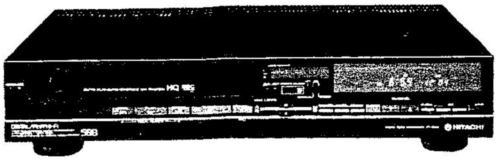
HITACHI
SERVICE MANUAL

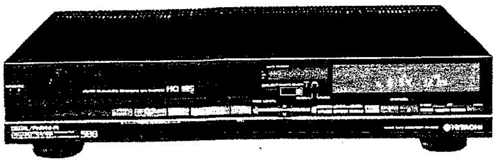
TK No.2820E

VT-588E(DSW,AU)

Technical Data



VT-588E(DSW)



VT-588E(AU)

SPECIFICATIONS

Format:	VHS PAL Standard
Recording:	Rotary Two-Head Helical Scan Azimuth Recording
Tape Speed:	23.39 mm/sec. (VTR mode), 11.7 mm/sec. (ATR mode)
Tape Width:	12.7 mm
Operation Temperature:	5°C to 40°C
Video:	PAL colour (system B & G) & CCIR monochrome signals 625 lines [For AU] PAL colour (system I, B & G) & MESECAM colour (system B & G) [For DSW]
Recording Time:	240 min. (VTR mode)/480 min. (ATR mode)....with E-240 cassette
Aerial Input:	VHF channels 0 — 11 [For AU] UHF channels 28 — 63 [For AU] VHF channels 2 – 12 [For DSW] CATV channels S1 – S20 [For DSW] UHF channels 21 – 69 [For DSW]
RF Output:	UHF channel 0 or 1 (System B) [For AU] UHF channels 37 (30 – 39 adjustable)(System G or I) [For DSW]
Video Input:	0.5 to 1.5Vp-p 75 ohm Unbalanced
Video Output:	1Vp-p 75 ohm Unbalanced
S/N Ratio (Video):	More than 43 dB
Horizontal Resolution:	Colour 260 lines
Audio (Linear)	
Input:	–8 dBs 50 Kohm
Output:	–8 dBs 1 Kohm
S/N Ratio:	43 dB
Frequency Range:	70 Hz to 12 kHz
Hi-Fi Audio	
Frequency Range:	20 Hz to 20 kHz
Dynamic Range:	More than 90 dB
Wow and Flutter:	Less than 0.005% WRMS
Power:	AC 240V 50 Hz [For AU] AC100 – 110V, 115 – 127V, 200 – 220V, 230 – 250V 50/60 Hz [For DSW]
Power Consumption:	47W (including timer) [For AU] 48W (including timer) [For DSW]
Timer:	12-hour digital indication
Cabinet Size:	435 mm(W) × 92 mm(H) × 375 mm(D)
Weight:	Approx. 8.5 kg
Accessories Included:	1 — Aerial cable 1 — Infrared remote control unit 2 — Batteries 1 — Audio cable [For AU] 2 – Programme sheets [For DSW] 1 – Power socket adaptor [For DSW]

* Design and specifications are subject to change without notice.

VHS

THIS VIDEO DECK IS A VHS TYPE VIDEO RECORDER.
FOR PROPER OPERATION, ONLY THE VHS TYPE CASSETTE MUST BE USED.

Manuals related to the VT-588E

Name of Manual	Language	Manual No.	Chapters included
Technical Data	English	2820E	Chapter 1–6
Technical Information	English	2743E	–

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

VIDEO CASSETTE RECORDER

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SAFETY PRECAUTIONS

The following precautions should be observed when servicing.

1. Since many parts in the unit have special safety-related characteristics, always use genuine Hitachi replacement parts. Especially critical parts in the power circuit block should not be replaced with other makes. Critical parts are marked with ⚠ in the schematic diagram and circuit board diagram.
2. Before returning a repaired unit to the customer, the service technician must thoroughly test the unit to ascertain that it is completely safe to operate without danger of electrical shock.

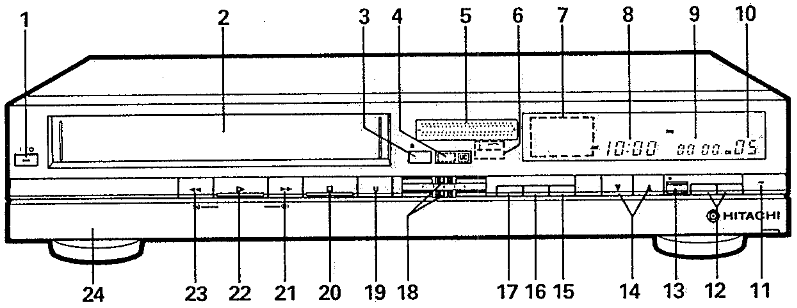
COMPARISON OF MAIN CONTROL ICs

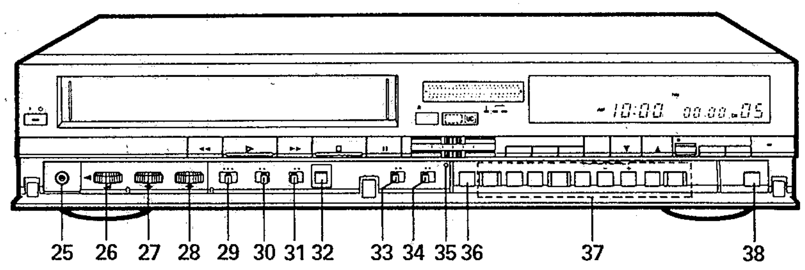
ITEM		VT-588E	VT-428E
VIDEO SYSTEM	Y.SIGNAL PROCESSOR	HT4847(IC201)	HT4847(IC201)
	CHROMA SIGNAL PROCESSOR	HT4809(IC301)	HT4809(IC301)
	Y.VERT.PROCESSOR	HT4848(IC202)	HT4848(IC202)
	COMB FILTER	HE8020(IC204)	HE8020(IC204)
	CCD 1H DELAY	HT4664(IC203)	HT4664(IC203)
AUDIO SYSTEM	IN-OUT SELECT/MODE SELECT	HA12117NT(IC501)	BA7751(IC402)
	LEVEL METER CONTROL	BA5137(IC511L,R)	———
	FM AUDIO PROCESS	HA12118NT(IC503)	———
	NOISE REDUCTION	BA7720S(IC401)	———
	REC LEVEL CONTROL	M51131L(IC402)	———
	SUB SCREEN AUDIO SELECT	M61659L(IC404)	———
MPX DEMODULATOR (For AU)	DEMODULATOR	IR·3P02(IC1801)	———
CH TUNING SYSTEM	TUNING CONTROL/BAND SWITCH	LA7935(IC801)V.S	LA7935(IC801)V.S
OSD	OSD μp	M50455-003SP(IC1401)	———
	AFC, SYNC SEPA. SYNC DET.	NJM2229S(IC1402)	———
SERVO SYSTEM	SPEED PHASE CONTROL	HD4716S(IC601)	HD4716S(IC601)
	CYLINDER MOTOR DRIVE	HA13403(IC603)	HA13403(IC603)
	CAPSTAN MOTOR DRIVE	TA8408(IC1601)	M54680FP(IC1610)
	TRICK PLAY CONTROL	M54874P(IC602)	M54874P(IC602)
SYSTEM CONTROL	SYSTEM CONTROL μp	HD614088SB99(IC901)	HD614088SB44(IC901)
	LOADING MOTOR DRIVE	BA6209U2(IC902)	BA6209U2(IC902)
	INDEX SEARCH CONTROL	HES-8026A(IC904)	HES-8026A(IC904)
TIMER	TIMER μp	M50955-678SP(IC701)	M50955-674SP(IC701)
	EAROM	M58630P(IC702)	M58630P(IC702)
POWER SUPPLY	REGULATOR	STK5372H(IC851)	STK5372H(IC851)
	5V REGULATOR	L780S05(IC852)	———
	-6V REGULATOR	AN79N06(IC853)	———
DIGITAL PROCESS	INPUT SIGNAL SELECT	HC4053FP(IC1001)	———
	P in P CHROMA H/V SIGNAL DECODER	HA11535MP(IC1002)	———
	SYNC SEPARATOR	NJM2217L(IC1003)	———
	CHROMA SIGNAL DECODER	M51271SP(IC1004,IC1006)	———
	MAIN/SUB SCREEN SWITCH	HD14053FP(IC1030)	———
	AGC	M51489L(IC1031)	———
	1-FIELD MEMORY CONTROL	M65011FP(IC1007)	———
	SPECIAL EFFECT DECODER	M50747FP(IC1008)	———
	OSC	HT4683A(IC1029)	———
	DATA SELECT	74HC157M(IC1009~ IC1010,IC1022~0C1024)	———
	A/D CONVERTER	M52678P(IC1011~IC1012)	———
	DATA SELECT	74HC153M(IC1013~IC1015, IC1019~IC1021)	———
	D/A CONVERTER	M52679P(IC1025~IC1027)	———
TIMER SUB	DIGITAL CONTROL	HD6074008F(IC2701)	———

COMPARISON WITH PREVIOUS MODEL

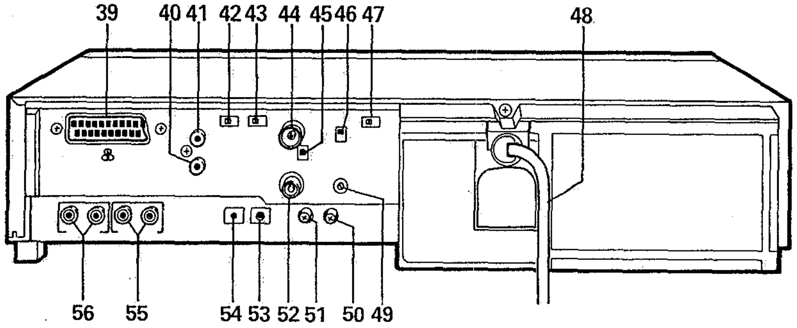
ITEM		VT-588E	VT-428E
FEATURES	HQ (HIGH QUALITY)	PROVIDED	PROVIDED
	LEVEL METER SWITCH	PROVIDED	NOT PROVIDED
	TV STILL	PROVIDED	NOT PROVIDED
	AUDIO DUB	PROVIDED	NOT PROVIDED
	MICROPHONE JACK	PROVIDED	NOT PROVIDED
	P in P	PROVIDED	PROVIDED
	P in P SHIFT	PROVIDED	PROVIDED
	TV in TV	PROVIDED	NOT PROVIDED
	MEMORY STOP	PROVIDED	NOT PROVIDED
	STROBE	NOT PROVIDED	PROVIDED
	ART (MOSAIC, PAINTING)	PROVIDED	PROVIDED
	MULTI SCREEN (4/9/16 PICTURE)	PROVIDED	NOT PROVIDED
	EDIT ON/OFF SWITCH	PROVIDED	PROVIDED(WITH REMOTE CONROL)
	TIMER RECORDING PROGRAMES	8 PROGRAMMES/1 YEAR	8 PROGRAMMES/1 YEAR
	TIMER BACKUP TIME	ABOUT 15 MINUTES	ABOUT 15 MINUTES
	PROGRAMMING WITH REMOTE CONTROL	PROVIDED	PROVIDED
	TIME SET WITH REMOTE CONTROL	PROVIDED	PROVIDED
	O.S.D	PROVIDED	NOT PROVIDED
	CALENDAR DISPLAY	PROVIDED (100 YEARS)	NOT PROVIDED
	POWER EJECT OFF	PROVIDED	PROVIDED
	DIGITAL TRICK PLAY	PROVIDED	NOT PROVIDED
	CHANNEL TUNING	V.S TUNING	V.S TUNING
CHASSIS	BASIC CHASSIS TYPE	ZZ	ZZ
	VIDEO HEADS	3 + Hi-Fi HEADS	3 HEADS
		REC/PB : CH1, CH2 57μm	REC/PB : CH1, CH2 65μm
		TRICK PLAY : 57μm	TRICK PLAY : 65μm
		Hi-Fi AUDIO REC/PB : 23μm	————
	CAPSTAN DRIVE SYSTEM	DIRECT DRIVE	DIRECT DRIVE
	HALF LOADING	PROVIDED	PROVIDED
	PHONES LEVEL CONTROL	PROVIDED	NOT PROVIDED
	AUDIO SELECT SWITCH	PROVIDED	NOT PROVIDED
	MPX ON/OFF SWITCH	PROVIDED	NOT PROVIDED
	AUX (A/V↔LINE) SELECT SWITCH	PROVIDED	NOT PROVIDED
	RECORDING LEVEL CONTROL	PROVIDED	NOT PROVIDED

CONTROLS AND FUNCTIONS [For DSW]





1. **OPERATE SWITCH**
   Turn the system power on and off.
2. **CASSETTE COMPARTMENT**
   Insert a cassette through the door, and loading will be completed automatically.
   Note: Power is turned on automatically when a cassette is loaded.
3. **EJECT BUTTON**
   Press to remove the cassette.
4. **INFRARED RAY RECEIVING SECTION**
   Receives infrared rays from the remote control unit.
5. **PEAK LEVEL INDICATOR**
   Shows the peak input levels of each audio channel during recording and the recorded levels during playback.
6. **INDICATORS**
   HiFi: Lights when playing back tapes recorded with Hi-Fi VHS sound.
   CH1/2: The sound to be played back can be switched by pressing the CH1/2 button on the remote control unit.
7. **MODE INDICATORS**
   - "[OO]" appears when a cassette is in the compartment.
   - "[PLAY]" appears during the playback mode.
   - "[REC]" appears during the record mode.
   - " ◁◁ " appears during the rewind mode and flashes during the rewind visual search mode.
   - " ▷▷ " appears during the fast forward mode and flashes during the forward visual search mode.
   - " ▯▯ " appears during the play/record pause mode.
   - " 🕘 " appears when the power is turned off and either the timer has been programmed or IRT is turned on.
   - "[INDEX]" appears when the index function is on.
8. **DIGITAL TIMER DISPLAY**
   This normally shows the time and day of the week.
9. **DIGITAL DATE/COUNTER/REMAIN DISPLAY**
   This shows the current date when the VTR power is turned off or shows the tape counter or time remaining of tape when the VTR power is turned on.
10. **CHANNEL INDICATOR DISPLAY**
    This shows the channel number corresponding to the channel selected.
11. **A.DUB INDICATOR**
    Lights when the VTR is audio dubbing.
12. **INSTANT RECORDING TIMER (IRT) BUTTONS**
    This allows unattended recording.
    Timer will switch the VTR off automatically at a preselected time. This is convenient when you go out during recording.
13. **REC BUTTON**
    Press REC button to record.
14. **CHANNEL SELECT BUTTONS**
    Select the channels you wish to view or record by pressing these buttons.
    And you can also select the "AU" position* by pressing this button to record or watch the programme input at the video/audio in or EURO jack.
    * One channel position either higher or lower outside the range of your preset channels.
15. **MEMORY BUTTON**
    Press this button so "M" is indicated in the display, then fast forward or rewind the tape. The tape stops when the counter reaches approximately "0000".
    Note: Press the button again to switch off the "M" indicator.
16. **COUNTER RESET BUTTON**
    To reset counter to "0000".
17. **COUNTER/REMAIN SELECT BUTTON**
    Press to switch from counter display to tape remain display.
18. **RECORDING LEVEL CONTROLS**
    When recording with ALC switch set to "OFF", adjust these controls so that +7 dB segments light occasionally (during especially loud portions).
19. **PAUSE BUTTON**
    Press to pause during recording.
    Press to view a still picture during playback.
    Press again to release.
20. **STOP BUTTON**
    The STOP button must be pressed between "RECORD" and any other operation.
21. **F.FWD/VISUAL SEARCH BUTTON**
    Press to activate fast forward.
    Press this button during playback and forward playback picture can be viewed at high speed.
22. **PLAY BUTTON**
    Note: When a cassette (with the erase prevention tab removed) is loaded, playback starts automatically.
23. **REW/VISUAL SEARCH BUTTON**
    Press to start rewind.
    Press this button during playback and reverse playback picture can be viewed at high speed.
24. **SECONDARY CONTROL DOOR**
25. **HEADPHONE SOCKET**
    Connect headphones to listen to the sound from the small screen when the picture-in-picture function is being used.
26. **PHONES LEVEL CONTROL**
    Adjusts the output level for headphones.
27. **PICTURE CONTROL**
    Adjust the picture so it is easy to see.
28. **TRACKING CONTROL**
    To minimize noise in playback.
29. **AUDIO SELECT SWITCH**
    Selects the linear audio playback or automatic selection of Hi-Fi VHS sound recorded on the tape. Normally set it to AUTO position.
    Note: When Hi-Fi VHS sound is played back, the Hi-Fi indicator lights.
30. **MPX SWITCH**
    Set this switch to "ON" when recording an FM programme to reduce the slight noise from the FM tuner.
    Set this switch to "OFF" when recording sound other than FM.
31. **AUX SELECT SWITCH**
    Set to A/V when recording signals input through the EURO jack on the rear panel, and set to LINE when recording signals from the AUDIO IN/VIDEO IN jacks.
    With either selection, operate the CHANNEL select button to display "AU" in place of a channel number.
32. **PinP BUTTON**
    Used for picture-in-picture display; this is also controlled from the remote control unit. (See page 22)
33. **EDIT SWITCH**
    Turn this switch on when using this VTR for playback during dubbing. The dubbed tape will provide clearer pictures. This function does not work when using this VTR for recording.
34. **ALC SWITCH**
    When you set this switch to the "ON" position, the recording level is controlled automatically. When you set it to the "OFF" position, the audio recording level must be adjusted manually.
35. **RESET SWITCH**
    Press this switch if the digital display malfunctions or no operation mode can be engaged to reset the display. Set the clock to the correct present time.
36. **SLOW BUTTON**
    Press SLOW button during playback, and the tape is played back at slow speed.



37. **CLOCK/TIMER/CHANNEL PRESET BUTTONS**

38. **A.DUB BUTTON**
Use this button to dub new sound on the previously recorded tape.

39. **EURO JACK**
For connection to a TV with a EURO or DIN jack using an exclusive cable. See your dealer for details.

40. **VIDEO OUT**
Permits video connection of your unit to a monitor or another VTR.

41. **VIDEO IN**
Receives the video signal from another VTR or a video camera.

42. **BUZZER SWITCH**
When this switch is on, a beep sound will be heard when any VTR operation button is pressed. This is a convenience in operation.
To stop this function, turn the switch off.

43. **AUTO/COLOUR SWITCH**
AUTO: Circuits are automatically switched to the colour or black/white mode. Set to this position when playing or recording a PAL signal.
COLOUR: When recording a PAL signal in an area far from the broadcasting station, the recorded picture may lose colour. In this case, set to this position in recording and playback.

44. **AERIAL INPUT SOCKET**
Connect an external aerial.

45. **ATTENUATOR SWITCH**
Generally set to the OFF position.
Set to "ON" when interference occurs in an area with a strong signal.

46. **TSG ON/OFF SWITCH**
Set to ON and check that the video channel of your TV set is correct. After setting, set this switch to OFF.

47. **I/G SELECT SWITCH**
Set this switch to match your TV.
See table below.

48. **MAINS LEAD**

49. **RF CHANNEL CONTROL**
Turn TSG ON/OFF switch to "ON" and rotate this control to tune correctly to the video channel.

50. **TV STILL V.LOCK CONTROL**
Adjust this control when the picture stored in memory shakes up and down.

51. **PB STILL V.LOCK CONTROL**
If you see vertical shaking on the TV screen in the still playback mode, rotate this control to minimize shaking.

52. **RF OUTPUT**
Connect to TV aerial input.

53. **MIC JACK**
Connect the microphone for audio dubbing.

54. **CAMERA PAUSE JACK**
Connect a camera pause cable.

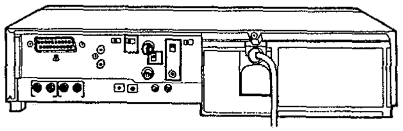
55. **AUDIO OUT (L), (R)**
Permits audio connection of your unit to a monitor or another VTR.

56. **AUDIO IN (L), (R)**
Receives audio signals from a camera, external sound equipment or from another VTR.

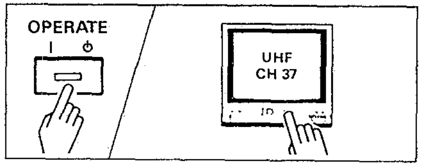
Colour TV Broadcast system	Major countries
PAL (System I)	Great Britain, Hong Kong, South Africa
PAL (System B & G)	Norway, Spain, Switzerland, Kuwait, United Arab Emirates, Qatar, Holland, Finland, Denmark, Sweden, Singapore, West Germany, Italy, Austria
MESECAM (System B & G)	Saudi Arabia, Iraq, Iran, G.D.R.

VIDEO CHANNEL SETTING

The RF converter changes the video and audio signals from a previously recorded video tape during playback to the same type of signal used for TV broadcasts. The RF converter output in this unit is pre-set prior to shipment to UHF channel 37.

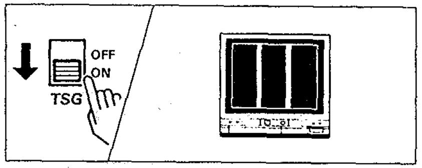

User's controls

1 Turn on VTR and TV, then set TV to UHF channel 37.



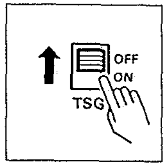
If your TV has a channel button marked "A/V", you can use this channel instead of UHF channel 37.

2 Set the TSG ON/OFF switch to ON.

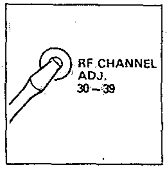


The test pattern appears on the TV screen.
Fine tune your TV until the test pattern is received clearly.

3 After precise adjustment, set the TSG ON/OFF switch to OFF.



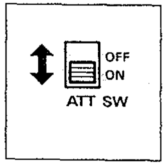
NOTE:
If it is not possible to correctly tune to the test pattern or channel 37 is used for broadcasting in your area, adjust the RF converter output with the RF channel control using a small screwdriver and readjust your TV until the test pattern is observed.



When connecting the VTR to a TV set provided with auto-tuning and the video channel cannot be set, operate as follows:

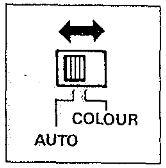
1. Remove the aerial cable from the AERIAL terminal of the VTR.
2. Leave the TSG ON/OFF switch "OFF".
3. Playback a blank tape.
4. Press the PAUSE button to set to the pause mode.
5. Press the Auto-tuning button of the TV.
6. Auto-tuning starts and it stops at UHF channel 37.
   Note: The auto-tuning indicator of the TV set changes to an exact tuning indicator.
7. Set the channel memory of the TV to ON and store the channel which was set in item 6.
8. Set the TSG ON/OFF switch to "ON" and check that the picture appears on the TV screen.
   Now, the video channel of the TV has been set properly.
9. Return the TSG ON/OFF switch to "OFF".
10. Reconnect the aerial cable to the VTR.

ATTENUATOR SWITCH



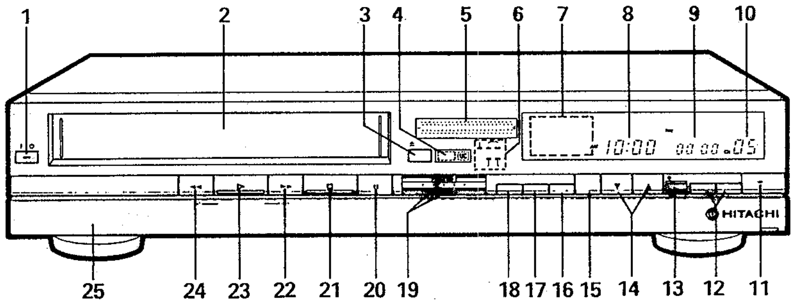
The ATTENUATOR switch located on the rear panel of the VTR is used to adjust the reception of the signal from the tuner section.
If wavy lines appear in the picture during the reception of a broadcast from a near-by TV station, it may be that the signal reception is too strong.
In this case, set this switch to ON to attenuate the signal.
Normally leave this switch in the OFF position.

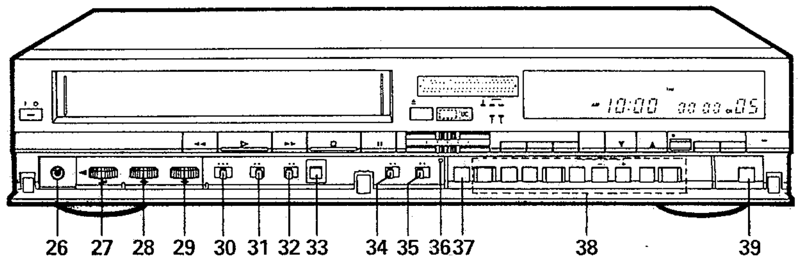
AUTO/COLOUR SWITCH



This switch is located on the back of the VTR.
AUTO: Normally leave the switch in this position for reception and playback.
COLOUR: When recording a PAL signal in an area very far from the broadcasting station, the recorded picture may lose colour. In this case, set the switch to this position in recording and playback.

CONTROLS AND FUNCTIONS [For AU]





1. OPERATE SWITCH
Turn the system power on and off.

2. CASSETTE COMPARTMENT
Insert a cassette through the door, and loading will be completed automatically.
Note: Power is turned on automatically when a cassette is loaded.

3. EJECT BUTTON
Press to remove the cassette.

4. INFRARED RAY RECEIVING SECTION
Receives infrared rays from the remote control unit.

5. PEAK LEVEL INDICATOR
Shows the peak input levels of each audio channel during recording and the recorded levels during playback.

6. INDICATORS
HiFi: Lights when playing back tapes recorded with Hi-Fi VHS sound.
CH1/2: The sound to be played back can be switched by pressing the CH1/2 button on the remote control unit.
STEREO: Will light when tuned to a stereo broadcast.
BILINGUAL: Will light when tuned to a bilingual broadcast.

7. MODE INDICATORS
- "OO" appears when a cassette is in the compartment.
- "PLAY" appears during the playback mode.
- "REC" appears during the record mode.
- "◁◁" appears during the rewind mode and flashes during the rewind visual search mode.
- "▷▷" appears during the fast forward mode and flashes during the forward visual search mode.
- "▯▯" appears during the play/record pause mode.
- "◷" appears when the power is turned off and either the timer has been programmed or IRT is turned on.
- "INDEX" appears when the index function is on.
- "VTR" appears when the TV/VTR select button is pressed to select the VTR mode.

8. DIGITAL TIMER DISPLAY
This normally shows the time and day of the week.

9. DIGITAL DATE/COUNTER/REMAIN DISPLAY
This shows the current date when the VTR power is turned off or shows the tape counter or time remaining of tape when the VTR power is turned on.

10. CHANNEL INDICATOR DISPLAY
This shows the channel number corresponding to the channel selected.

11. A.DUB INDICATOR
Lights when the VTR is audio dubbing.

12. INSTANT RECORDING TIMER (IRT) BUTTONS
This allows unattended recording.
Timer will switch the VTR off automatically at a preselected time. This is convenient when you go out during recording.

13. REC BUTTON
Press REC button to record.

14. CHANNEL SELECT BUTTONS
Select the channels you wish to view or record by pressing these buttons.
And you can also select the "AU" position* by pressing this button to record or watch the programme input at the video/audio in or EURO jack.
* One channel position either higher or lower outside the range of your preset channels.

15. TV/VTR SELECT BUTTON
VTR: To monitor video recoding or to view playback.
TV: To watch TV or to view another programme while recording a different programme.
Note: When this button is set to VTR, the VTR indicator appears in the display.

16. MEMORY BUTTON
Press this button so "M" is indicated in the display, then fast forward or rewind the tape. The tape stops when the counter reaches approximately "0000".
Note: Press the button again to switch off the "M" indicator.

17. COUNTER RESET BUTTON
To reset counter to "0000".

18. COUNTER/REMAIN SELECT BUTTON
Press to switch from counter display to tape remain display.

19. RECORDING LEVEL CONTROLS
When recording with ALC switch set to "OFF", adjust these controls so that +7 dB segments light occasionally (during especially loud portions).

20. PAUSE BUTTON
Press to pause during recording.
Press to view a still picture during playback.
Press again to release.

21. STOP BUTTON
The STOP button must be pressed between "RECORD" and any other operation.

22. F.FWD/VISUAL SEARCH BUTTON
Press to activate fast forward.
Press this button during playback and forward playback picture can be viewed at high speed.

23. PLAY BUTTON
Note: When a cassette (with its erase prevention tab removed) is loaded, playback starts automatically.

24. REW/VISUAL SEARCH BUTTON
Press to start rewind.
Press this button during playback and reverse playback picture can be viewed at high speed.

25. SECONDARY CONTROL DOOR

26. HEADPHONE SOCKET
Connect headphones to listen to the sound from the small screen when the picture-in-picture function is being used.

27. PHONES LEVEL CONTROL
Adjusts the output level for headphones.

28. PICTURE CONTROL
Adjust the picture so it is easy to see.

29. TRACKING CONTROL
To minimize noise in playback.

30. AUDIO SELECT SWITCH
Selects the linear audio playback or automatic selection of Hi-Fi VHS sound recorded on the tape. Normally set it to AUTO position.
Note: When Hi-Fi VHS sound is played back, the Hi-Fi indicator lights.

31. MPX SWITCH
Set this switch to "ON" when recording an FM programme to reduce the slight noise from the FM tuner.
Set this switch to "OFF" when recording sound other than FM.

32. AUX SELECT SWITCH
Set to A/V when recording signals input through the EURO jack on the rear panel, and set to LINE when recording signals from the AUDIO IN/VIDEO IN jacks.
With either selection, operate the CHANNEL select button to display "AU" in place of a channel number.

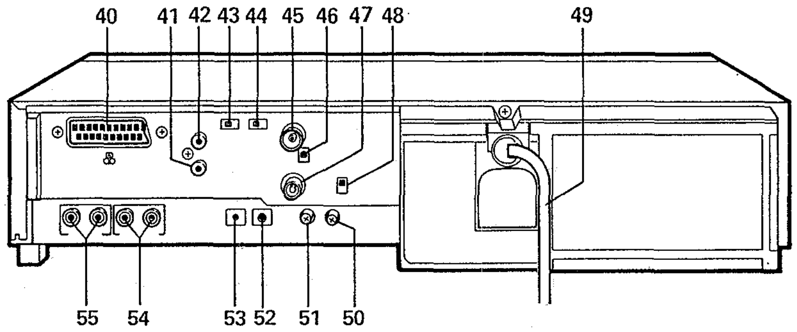
33. PinP BUTTON
Used for picture-in-picture display; this is also controlled from the remote control unit. (See page 22)

34. EDIT SWITCH
Turn this switch on when using this VTR for playback during dubbing. The dubbed tape will provide clearer pictures. This function does not work when using this VTR for recording.

35. ALC SWITCH
When you set this switch to the "ON" position, the recording level is controlled automatically. When you set it to the "OFF" position, the audio recording level must be adjusted manually.

36. RESET SWITCH
Press this switch if the digital display malfunctions or no operation mode can be engaged to reset the display. Set the clock to the correct present time.

37. SLOW BUTTON
Press SLOW button during playback, and the tape is played back at slow speed.



38. **CLOCK/TIMER/CHANNEL PRESET BUTTONS**

39. **A.DUB BUTTON**
Use this button to dub new sound on the previously recorded tape.

40. **EURO JACK**
For connection to a TV with a EURO or DIN jack using an exclusive cable. See your dealer for details.

41. **VIDEO OUT**
Permits video connection of your unit to a monitor or another VTR.

42. **VIDEO IN**
Receives the video signal from another VTR or a video camera.

43. **BUZZER SWITCH**
When this switch is on, a beep sound will be heard when any VTR operation button is pressed. This is a convenience in operation.
To stop this function, turn the switch off.

44. **AUTO/COLOUR SWITCH**
AUTO: Circuits are automatically switched to the colour or black/white mode. Set to this position when playing or recording a PAL signal.
COLOUR: When recording a PAL signal in an area far from the broadcasting station, the recorded picture may lose colour. In this case, set to this position in recording and playback.

45. **AERIAL INPUT SOCKET**
Connect an external aerial.

46. **ATTENUATOR SWITCH**
Generally set to the OFF position.
Set to "ON" when interference occurs in an area with a strong signal.

47. **RF OUTPUT**
Connect to TV aerial input.

48. **CH0/1 SELECT SWITCH**
Select either position for your video channel.

49. **MAINS LEAD**

50. **TV STILL V.LOCK CONTROL**
Adjust this control when the picture stored in memory shakes up and down.

51. **PB STILL V.LOCK CONTROL**
If you see vertical shaking on the TV screen in the still playback mode, rotate this control to minimize shaking.

52. **MIC JACK**
Connect the microphone for audio dubbing.

53. **CAMERA PAUSE JACK**
Connect a camera pause cable.

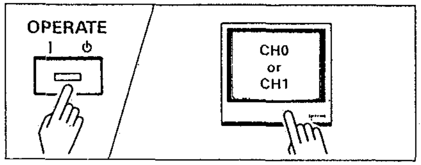
54. **AUDIO OUT (L), (R)**
Permits audio connection of your unit to a monitor or another VTR.

55. **AUDIO IN (L), (R)**
Receives audio signals from a camera, external sound equipment or from another VTR.

VIDEO CHANNEL SETTING

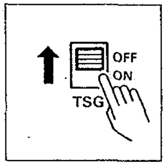
The RF converter changes the video and audio signals from a previously recorded video tape during playback to the same type of signal used for TV broadcasts. It can be set simply by setting the RF channel select switch to CH0 or CH1 whichever channel is unused in your area.

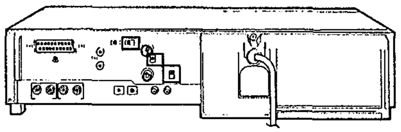
1 Turn on VTR and TV, then set TV to unused channel (CH0 or CH1).



If your TV has a channel button marked "A/V", you can use this channel instead of CH0 or CH1.

2 Set RF channel select switch to the same channel as step 1.
This is a video channel.
Your TV must be set to this channel for viewing what the VTR is recording or playing, and for viewing the signal from the VTR tuner.



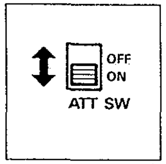


User's controls

When connecting the VTR to a TV set provided with auto-tuning and the video channel cannot be set, operate as follows:

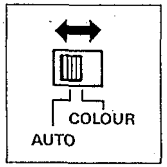
1. Remove the aerial cable from the AERIAL terminal of the VTR.
2. Playback a blank tape.
3. Press the PAUSE button to set to the pause mode.
4. Press the Auto-tuning button of the TV.
5. Auto-tuning starts and it stops at video channel.
   Note: The auto-tuning indicator of the TV set changes to an exact tuning indicator.
6. Set the channel memory of the TV to ON and store the channel which was set in item 5.
   Now, the video channel of the TV has been set properly.
7. Reconnect the aerial cable to the VTR.

ATTENUATOR SWITCH



The ATTENUATOR switch located on the rear panel of the VTR is used to adjust the reception of the signal from the tuner section.
If wavy lines appear in the picture during the reception of a broadcast from a near-by TV station, it may be that the signal reception is too strong.
In this case, set this switch to ON to attenuate the signal.
Normally leave this switch in the OFF position.

AUTO/COLOUR SWITCH



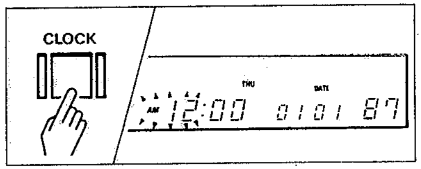
This switch is located on the back of the VTR.
AUTO: Normally leave the switch in this position for reception and playback.
COLOUR: When recording a PAL signal in an area very far from the broadcasting station, the recorded picture may lose colour. In this case, set the switch to this position in recording and playback.

CLOCK TIME SETTING

The built-in digital clock is based on a 12-hour cycle and gives you a constant readout of the time and day. The clock time can also be set with the remote control unit provided. See the supplementary manual for operating procedure.

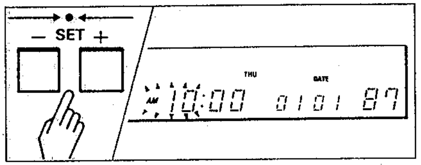
- When the MAINS lead is plugged in for the first time, "–:– –" and "DATE – – – –" will appear in the display.

1 Press the CLOCK button.



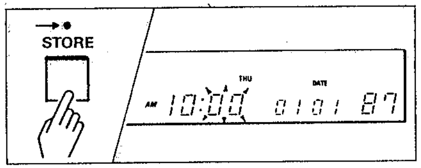
"AM 12" hour starts flashing.

2 Press the SET button (Forward or Reverse) to set the present hour.

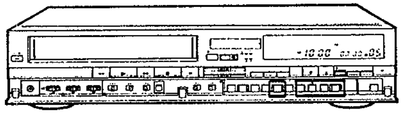


Hold the button down to advance rapidly.

3 Press the STORE button when the present hour appears.
"00" minutes starts flashing.

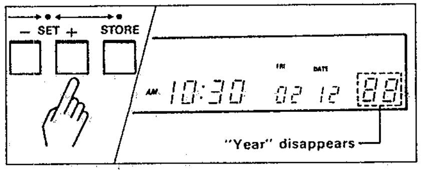


For example, the diagram shows that "AM 10" hours have been set.



User's controls

4 Repeat steps 2 and 3 to set minute, day, month and year.



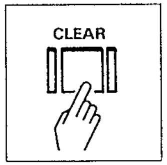
The day of week appears automatically after the year has been entered.
The year disappears from the display when the STORE button is pressed.

For example, the diagram shows that 10:30 FRI, 2 of December 1988 have been set.

Now the clock has been set to the correct time and date.

To correct an error during setting

You can correct an error in the setting any time before the last step by pressing the CLEAR button repeatedly until the digit to be corrected is flashing. Then enter the correct digit and continue the setting sequence.



Notes:

- This VTR has a built-in power failure compensation circuit. If a power interruption of less than 15 minutes occurs, the clock time will not be lost.
- The digital display is bright when the OPERATE switch is turned ON and automatically becomes dim when the switch is off.
- When the time set by the remote control unit provided is transferred to the VTR, the transferred information is displayed on the TV screen for about 8 seconds.

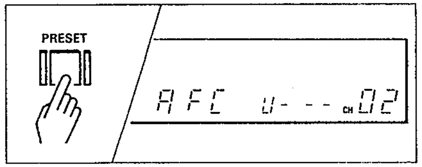
DAY/MONTH/YEAR
2 DEC 88
AM 10:30

PRE-TUNING OF BUILT-IN TV TUNER

This VTR incorporates a complete television tuner with the required tuning controls. Once you have pre-tuned to preferred stations, you can select any of them by merely pressing the CHANNEL select button.
Before pre-tuning TV stations, set the clock time.

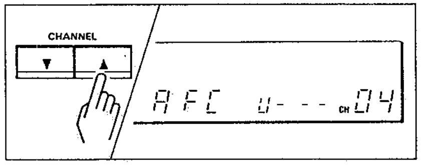
1 Turn on VTR and TV, then set TV to the pre-tuned video channel.

2 Press the PRESET button once.



The display indication changes from the clock time display to the band indicator display.
Note: Pressing the button twice will lock the display. If you have pressed it twice, press it once more.

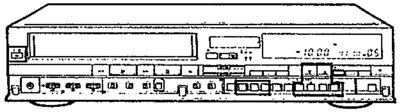
3 Press the CHANNEL select button on VTR to select the channel to be memorized.



For example, the above diagram shows that channel 4 has been selected.

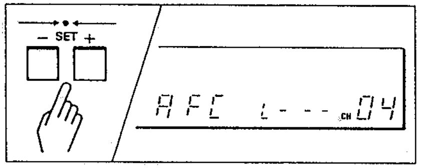
Notes:

1. Channel numbers "00" through "73" and "95" through "99" and "AU" can be now selected consecutively by pressing the CHANNEL select button (either up or down). In this case, you can use any channel number.
2. When "AFC" is not indicated in the display, press AFC OFF button to display "AFC".



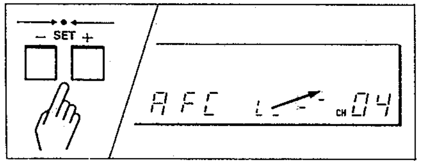
User's controls

4 Press the Reverse SET (–) button to select the desired band to be pre-tuned.
If you pre-tune to VHF low channels (0–5), select the indication "L". Select "H" for VHF high channels (5A–11).
Select "U" for UHF channels (28–63).



For example, the above diagram shows that VHF Low band "L" has been selected.

5 Press and release the Forward SET (+) button to start tuning.



The built-in tuner starts searching from the lowest to highest frequencies, and dash (–) appears in sequence in the direction of the arrow during searching.
At a station that is broadcasting, the picture appears on the TV screen. If the station received is different from the channel to be preset, press Forward SET button again.
At the next station, the searching will stop and the new station can be preset. Repeat this until the desired station is reached.

6 Follow the same steps as explained in steps 3 through 5 above for other channels.
You can preset up to 79 channels in memory.

7 After having completed tuning to all required channel memories, press the PRESET button once again.

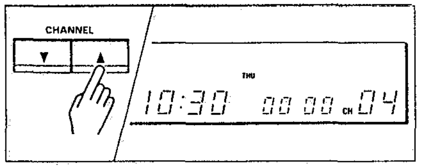
The channels preset in memory can now be selected with the CHANNEL select buttons on the VTR.

AFC (Automatic Frequency Control)

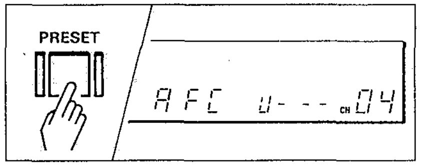
Since this unit has an AFC circuit, when a channel is preset following the above procedure, the AFC turns on automatically and you can receive the signal in optimum condition.

If a TV channel signal is marginal with graininess or ghosts, the picture may sometimes be improved by manually tuning for the best picture and then defeating the AFC action. To turn AFC off, follow the procedure below.

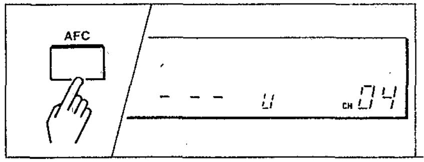
1 Select the desired channel by pressing the CHANNEL select button.



2 Press the PRESET button once.

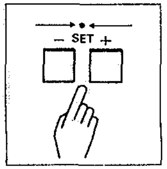


3 Press the AFC button. "AFC" disappears from the display.

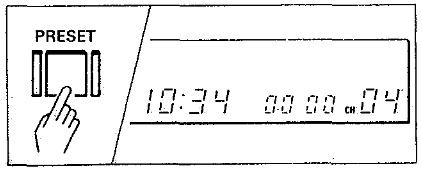


Note: Pressing the button once again will turn AFC on again.

4 Tap on the SET button (Forward or Reverse) alternately for fine tuning.

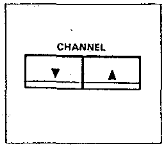


5 Press the PRESET button once again.



Channel selection

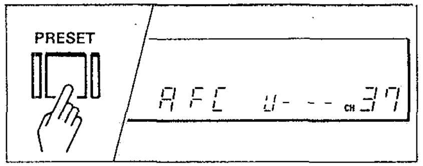
The channel up and down controls on the VTR let you advance directly to the next higher or lower programmed channel.



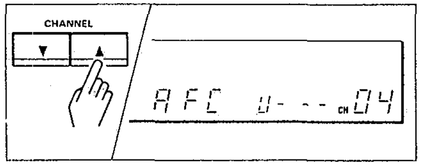
Eliminating unwanted preset channels

You can rearrange channels, eliminating unwanted preset channels from channel up/down tuning.

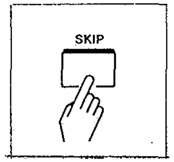
1 Press the PRESET button once.



2 Press the CHANNEL select buttons until an unwanted channel is found.



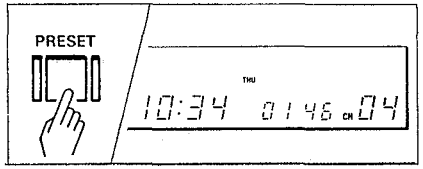
3 Press the SKIP button once.



Sound will go off indicating the channel has been erased from memory.

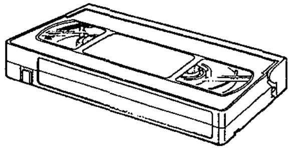
4 Repeat steps 2 and 3 until all unwanted channels have been erased.

5 After eliminating them, press the PRESET button again.



Note: To restore the erased channel, repeat the above steps.

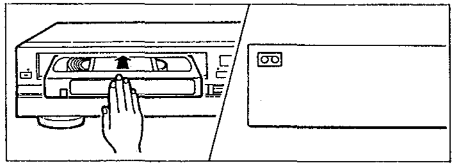
CASSETTE TAPES



Use video cassette with the VHS mark in this VTR.

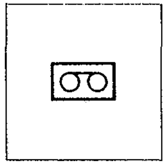
Insertion

Push the cassette through the door until the VTR mechanism pulls it into the compartment.



VTR power automatically turns on and the indicator ꝏ turns on when the cassette is in place.

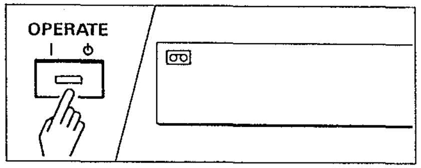
Indicator ꝏ



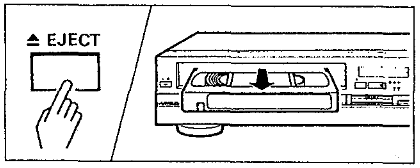
- Will light when the cassette is in the VTR regardless of turning the OPERATE switch on and off.
- Will flash for approx. 5 seconds to warn you to insert a cassette when the OPERATE switch is turned on or the REC or PLAY button is pressed if there is no cassette in the VTR.

Removal

1 Turn the OPERATE switch on.



2 Press the EJECT button.

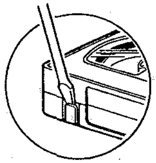


The cassette will come partially out of the compartment so you can pull it out.

- The indicator ꝏ turns off when the cassette is ejected.

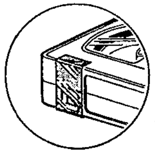
To avoid erasing a recording

Break off the safety tab using a screwdriver or similar tool



To re-record on a cassette which has its safety tab removed

Cover the hole with cellophane tape

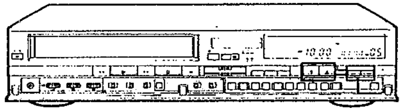


Remember that:

- The VTR automatically enters the playback mode when a cassette without a safety tab is inserted.
- The VTR automatically ejects the cassette if the REC button is pressed when a cassette without a safety tab is in the VTR.
- Be sure to check the safety tab before inserting a cassette for the above reasons.

INSTANT RECORDING TIMER (IRT)

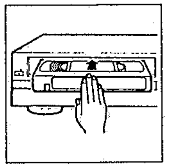
The Instant Recording Timer allows you to make simplified timer recording without using the programme timer. There are two simplified methods, as explained below.



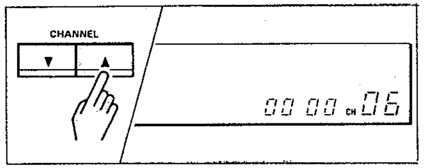
User's controls

FOR IMMEDIATE RECORDING

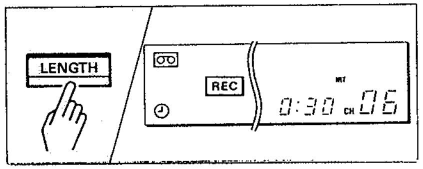
1 Insert the cassette (one with an intact erase prevention tab) into the cassette compartment.



2 Press CHANNEL select button to select the channel to be recorded.



3 Press LENGTH button to set the timer to "0:00". Then press LENGTH once again to indicate the recording time on the display.



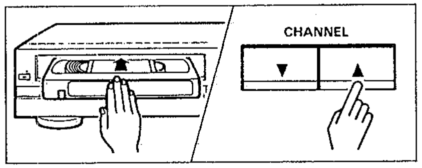
The time changes in the order 0:30, 1:00, 1:30, 2:00, 3:00 and 4:00 when the button is pressed several times. Recording starts when 0:30 is displayed. During recording, the remaining time is displayed.

4 At the end of recording the display reads 0:00; the VTR will automatically stop.

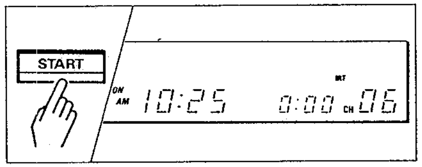
Note: The IRT feature does not operate during play and after a programme timer recording has started. During rewind mode, the IRT recording will automatically start after the tape is rewound fully to the end.

FOR SIMPLIFIED TIMER RECORDING

1 First perform Steps 1 and 2 of "FOR IMMEDIATE RECORDING".

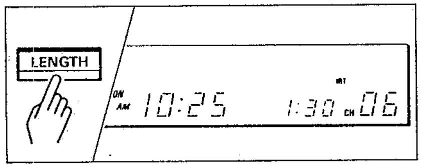


2 Press the START button to select the start time.



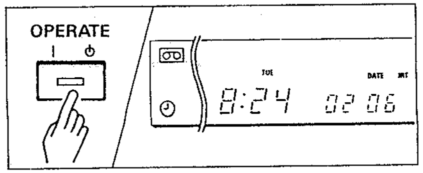
Holding the button down increments the start time in 10-minute steps. Each time it is pressed increments the start time by 1 minute.

3 Press LENGTH button to set the required recording time.



The counter display is reset to hours and minutes in the order 0:00, 0:30, 1:00, 1:30, 2:00, 3:00 and 4:00 when the button is pressed several times.

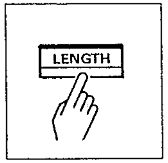
4 Press OPERATE switch off.



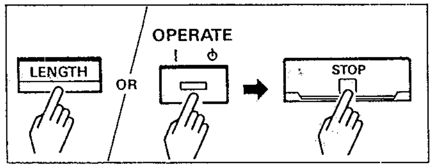
The "🕘" indication will appear in the display. The recording will start at the time selected and will automatically stop when the recording time display reads "0:00".

Notes:

1. The recording time can be extended any time during IRT by pressing LENGTH button. The recording time display will be reset to 0:30, 1:00, 1:30, 2:00, 3:00 or 4:00 as selected.



2. To stop the VTR during IRT, press the LENGTH button until the recording time display reads 0:00, or press the OPERATE switch then the STOP button within ten seconds.

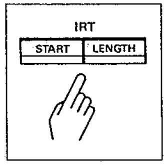


3. To change the IRT programme, the previous information must be first cleared.
4. If IRT and the programme timer recording overlap, IRT recording has priority.

To recall the IRT programme

Press START or LENGTH button to recall the start time and the recording time. In about 8 seconds the displays return to the present time of day.

Note: To recall the start time or the recording time, press LENGTH button only once.



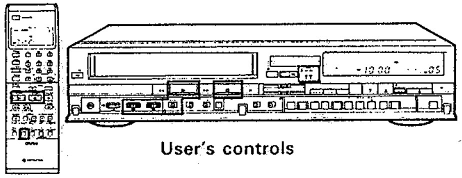
Pressing more will change the recording time and cause a need for resetting.

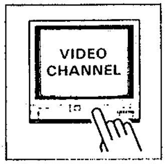
To cancel IRT programme

Press LENGTH button as many as required to indicate "0:00" on the display. After approximately 8 seconds the display will return to the present time of day, and IRT has been now cleared.

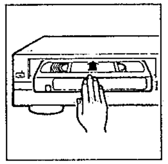
Note: OPERATE switch may be on or off.

PLAYBACK


User's controls

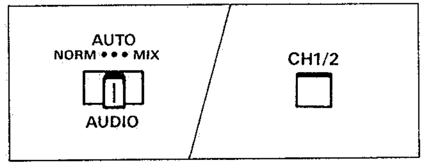


1 Turn the TV set on and select the video channel.

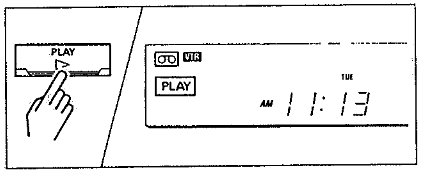


2 Insert the cassette.
Note: When the cassette (with its erase prevention tab removed) is loaded, playback starts automatically.

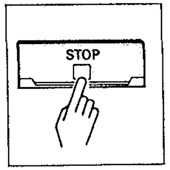
3 Select the positions of the AUDIO select switch on the VTR and CH1/2 select switch on the remote control unit. See at right.



4 Press the PLAY button.

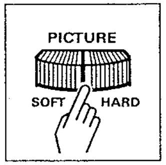


5 Press the STOP button to stop playback.

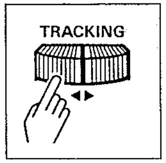


Picture control adjustment

Adjust to your required picture (soft or hard).

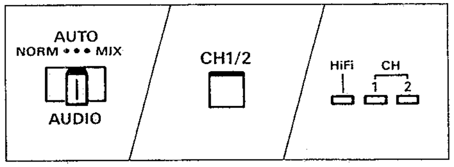


Tracking control adjustment



When playing prerecorded tapes or those recorded on units other than your own, black and white streaks may appear on your TV screen. If this occurs, adjust the TRACKING control until the streaks disappear. When playback of this particular tape is over, readjust the TRACKING control to its original position. The original position is normally in the center position.

AUDIO and CH1/2 select switches



■ **When playing stereo or monaural tapes**
Set the AUDIO select switch to AUTO and press the CH1/2 select switch on the remote control unit so that both the CH1 and CH2 indicators on the front panel of the VTR light.

■ **When playing back bilingual broadcasts**
Set the AUDIO select switch to AUTO and select the required language by pressing the CH1/2 select switch.

- When only the CH1 indicator lights, the main language is heard.
- When only the CH2 indicator lights, the sub language is heard.
- When both CH1 and CH2 indicators light, the main language and sub language are heard.

■ **When playing back audio dubbed tapes**
Use the AUDIO select switch to select the required sound.

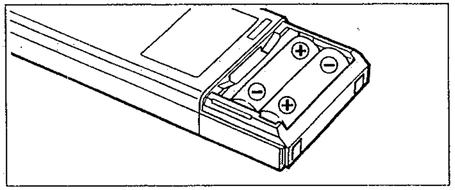
- Set to AUTO when listening to the original sound.
- Set to NORM when listening to the dubbed sound.
- Set to MIX when listening to the original sound and dubbed sound simultaneously.

REMOTE OPERATION

You can operate the VTR from a distance using the Infrared Remote Control unit which performs the same functions as the corresponding buttons on the VTR.

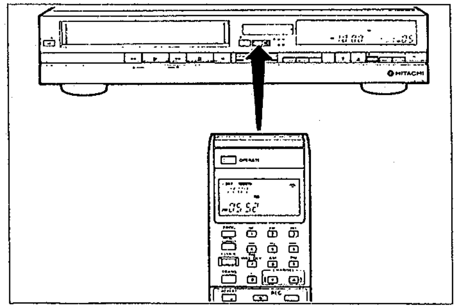
Power source of infrared remote control unit

The infrared remote control unit is powered by two batteries (size IEC standard R6). The life of the batteries is about a year although it depends on the number of times the unit is used. Replace the batteries when operation is not possible or when the distance becomes too small.

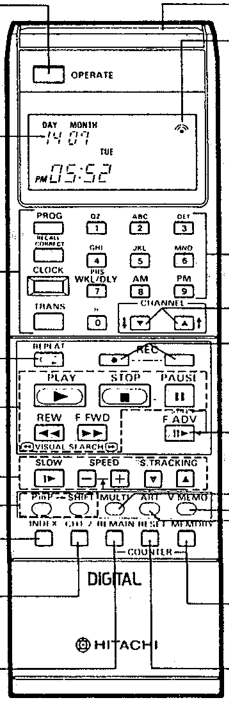


Operation of remote control

To use the infrared remote control unit aim it at the receiver on the front panel of the VTR.



Controls and function



OPERATE: Same as OPERATE on the VTR. (Turns operate on/off.)

CLOCK/TIME DISPLAY: While setting the clock/timer, this display will prompt you through the procedure. After setting the clock, **the display gives you a constant readout of the clock time.**

CLOCK/TIMER PROGRAMME BUTTONS: See the supplementary manual for complete inormation.

REPEAT: For repeat function. See page 21 for details.

PLAY/STOP/PAUSE/REW/F.FWD: Same as on the VTR.

SLOW/SPEED/S.TRACKING: Used for slow motion play. (See page 21 for details.)

P in P/SHIFT: For Picture-in-picture function. See page 22 for details.

INDEX: Used for the tape indexing function.
See page 29 for complete information.

REMAIN: Switches from a counter display to a tape remaining display.

REMAIN: Switches from a counter display to a tape remaining display.

TRANSMISSION WINDOW

TRANSMITTING INDICATOR: Will light when any button is pressed, and transmit commands from the remote control unit to the VTR.

10-KEY BUTTON
- Press two numbers to select a channel.
- Also uses for setting the clock, programming the timer and operating the OSD function.

CHANNEL: Same as CHANNEL on the VTR. (Selects next higher or lower channel.)

REC: Press both buttons to start recording.

F.ADV: Advance the picture from frame to frame during still playback. See page 21.

MULTI: For multi strobe function. See page 25.

V.MEMO: For digital memory function. See page 25.

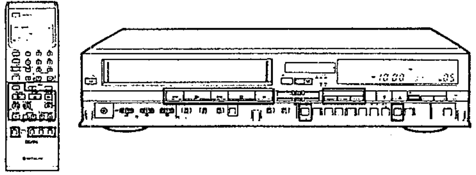
ART: For digital art function. See page 25.

MEMORY: Same as MEMORY on the VTR. (Turns counter memory on/off.)

RESET: Same as RESET on the VTR. (Resets tape counter to 0000.)

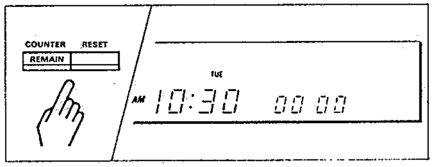
NOTE: The infrared rays will bounce off the walls and eventually reach the receiver on the VTR, but for best results, transmit the rays directly to the receiver.

SPECIAL CHARACTERISTICS



Tape counter

This indicates the amount of video tape transported as a number. Press the COUNTER/REMAIN select button to display the tape counter in the display then press the RESET button to set the counter reading to "0000" when starting recording or playing back.

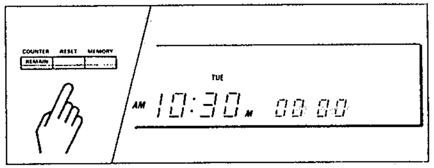


Note the number on the tape counter at the beginning and end of each programme you record. This will allow you to use the counter to find the desired programme later.

Counter memory function

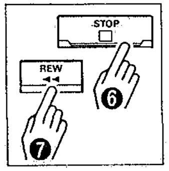
This is useful if there is a section of tape you want to view immediately after recording or if you want to return to the same point several times.

1. Begin recording or playing back a tape.
2. Press the COUNTER/REMAIN select button to display the tape counter in the display.
3. At the point where you want playback to begin, reset the tape counter to "0000" by pressing the RESET button.
4. Press MEMORY button, and the "M" appears in the display.



5. Continue to play or record.
6. Press the STOP button when recording or playback finishes.
7. Press the REW button.

The tape will automatically stop at the position where "0000" was preset.
Actually, so that you won't miss the very first part of the programme, the tape will stop slightly prior to "0000", at a reading of approximately "9997".

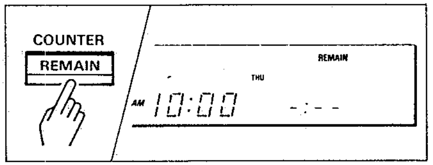


Note: The counter memory function will also operate in the fast-forwarding mode.

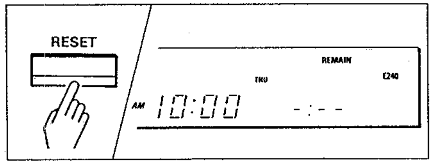
Tape remaining

This function allows the time of the remaining tape to be displayed during recording or playback.

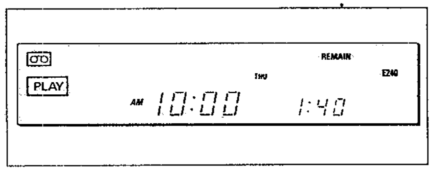
1. Press the COUNTER/REMAIN select button.
   The "REMAIN" indicator lights in the display and the counter display is replaced with the tape remaining display.



2. Press the RESET button and display the E-240 indicator in the display only when the cassette E240 is used.
   Note: Set the RESET button correctly matching the tape used. When the setting position is wrong, the remaining time is not displayed correctly.

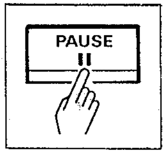


3. Start recording or playback. After approx. 15 seconds, the remaining time appears in the display.



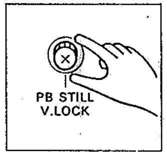
Still playback

Press the PAUSE button to stop the picture on the screen during playback.
Press the PAUSE button again to reset to normal playback, or the STOP button to stop the tape.



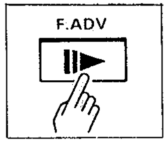
Notes:

- If you see vertical shaking on the TV screen in the still playback mode, rotate the PB STILL V.LOCK control on the rear panel to minimize shaking.
- When the still playback mode continues for about 5 minutes, the VTR switches to the stop mode automatically to prevent damage to the tape.
- The playback picture will contain some noise in the still playback mode.



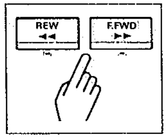
Frame advance

When you hold the F.ADV button on the remote control unit down during the still playback mode, tape will be played back frame by frame. It operates only after PAUSE button has been pressed.



Visual search

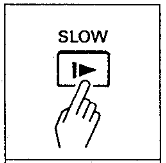
This allows you to view the played back picture at high speed in both the forward and reverse directions.
Press the PLAY button to play a tape, then press either the VISUAL SEARCH button REW or F.FWD. Pictures can be viewed at high speed in either the forward or reverse direction.
Note: The playback picture will have some noise in the visual search mode.

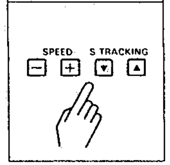


Slow function

Press the SLOW button during playback, and the tape is played back at slow speed.
Then use the SPEED buttons on the remote control unit to vary the playback speed.
Notes:

- When noise appears in the slow playback pictures, it can be removed by pressing the S.TRACKING buttons on the remote control unit. Removing the noise in the slow playback also lets you enjoy a noisefree picture in still playback.
- When the slow playback mode continues for about 5 minutes, the VTR switches to the play mode automatically.

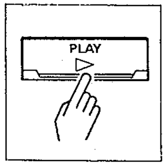




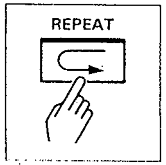
Repeat function

Use this function to repeat the scene you have just viewed during playback.

1. During playback, press the PLAY button at the scene where you want the repeat of the playback to start. The playback continues.

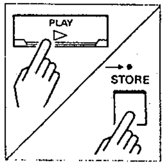


2. Press the REPEAT button on the remote control unit. The VTR enters into the reverse search mode then enters into the playback mode at the position where the PLAY button was pressed.



Auto endless play

Press the PLAY and STORE buttons simultaneously; you can play the tape from the beginning to the end repeatedly. To stop endless play, press the EJECT or OPERATE button.
Note: If the counter memory function is turned on, the VTR stops rewinding at "0000" then start playback.



Automatic rewind

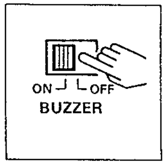
The VTR automatically rewinds the tape when the end of the tape is reached.

Rewind shut off

If OPERATE switch is pressed during rewind operation, power will be turned off automatically after the tape has been completely rewound.
Note: If the counter memory or index function is turned on, the VTR will stop rewinding and switch off at the specified position.

Beep sound

This VTR has a BUZZER switch on the rear panel. When this switch is ON, a beep sound will be heard when any VTR operation button is pressed.
This is a convenience in operation.
To stop the beep sound, set the switch to OFF.



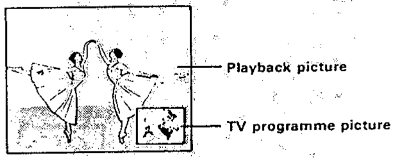
DIGITAL VIDEO EFFECTS AND ON-SCREEN-DISPLAY (OSD) FUNCTIONS

Your new VTR offers the following special effects made possible by digital video technology and can be controlled from a distance using the infrared remote control unit provided.

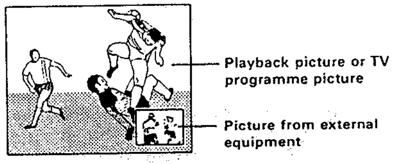
Digital picture-in-picture feature

This VTR is capable of displaying two pictures on the TV screen at the same time by using the PinP (Picture in Picture) function.
You can enjoy the PinP function in the following three ways.
(The pictures on the main and small screens can be interchanged in all cases.)

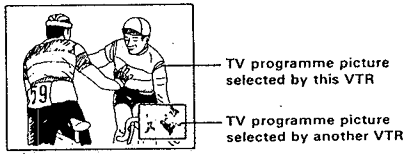
1. To view playback picture and off-the-air TV programme picture simultaneously.
   (See "CONNECTION DIAGRAM 1")


Playback picture
TV programme picture

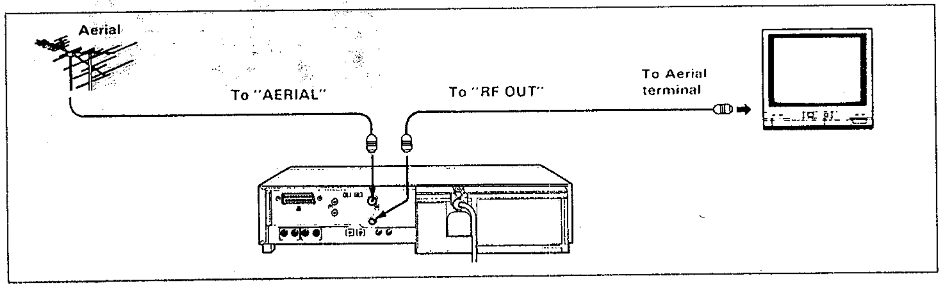
2. To view playback picture or off-the-air TV programme and the picture from external equipment simultaneously.
   (See "CONNECTION DIAGRAM 2")


Playback picture or TV programme picture
Picture from external equipment

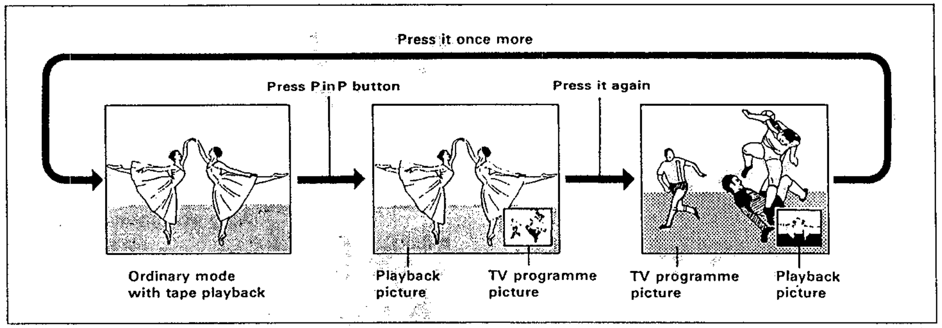
3. To view two off-the-air TV programmes on different channels simultaneously (TV in TV feature).
   (See "CONNECTION DIAGRAM 3")


TV programme picture selected by this VTR
TV programme picture selected by another VTR

CONNECTION DIAGRAM 1


Aerial
To "AERIAL"
To "RF OUT"
To Aerial terminal

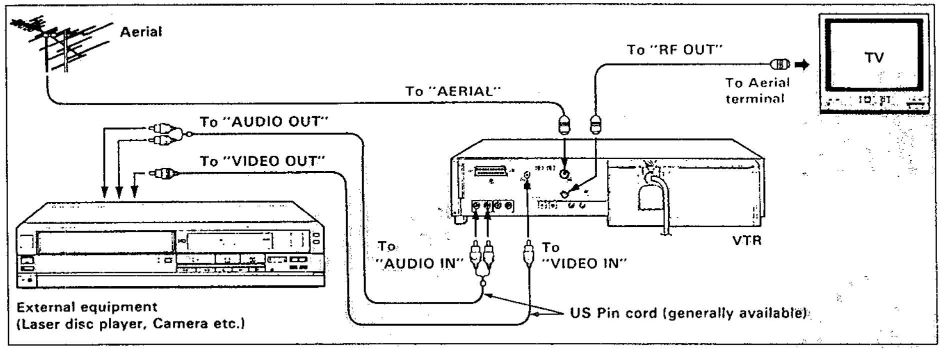
1. Press the PinP button while the VTR is playing back a tape. The tape programme will be displayed on the main screen and the off-the-air TV programme (through the VTR's built-in tuner) will be on the small screen.
   Note: If the button is pressed when the tape is not being played back, no programme will be displayed on the small screen.
2. Press the PinP button again. The VTR playback picture will appear on the small screen and the tuner picture will appear on the large screen.
3. Press it once more to return to the ordinary mode.


Press it once more
Press PinP button
Press it again
Ordinary mode with tape playback
Playback picture
TV programme picture
TV programme picture
Playback picture

Notes:

1. Special effects (such as Still, Frame advance, Slow, F-search and R-search) will cancel the picture-in-picture when the tape is played back on the main screen and the TV picture on the small screen.
2. Picture-in-picture is viewable with special effects (though with some noise), if it is displayed on the small screen. However, the picture on the small screen may fluctuate up and down.
3. Changing the channel of the TV picture on the small screen is possible by pressing the CHANNEL select button. This enables you to check what is on the various channels while you are playing a tape.
4. When a B/W picture is on main screen, a B/W picture will also be on the small screen.
5. If a poor picture is displayed on the main screen (when the tuner's reception is poor or when a poorly recorded tape is played back), a B/W picture may appear on the small screen or the picture may fluctuate up and down.
6. When a picture with a horizontal line such as a test pattern, etc. is displayed on the small screen, the horizontal line may disappear.

CONNECTION DIAGRAM 2

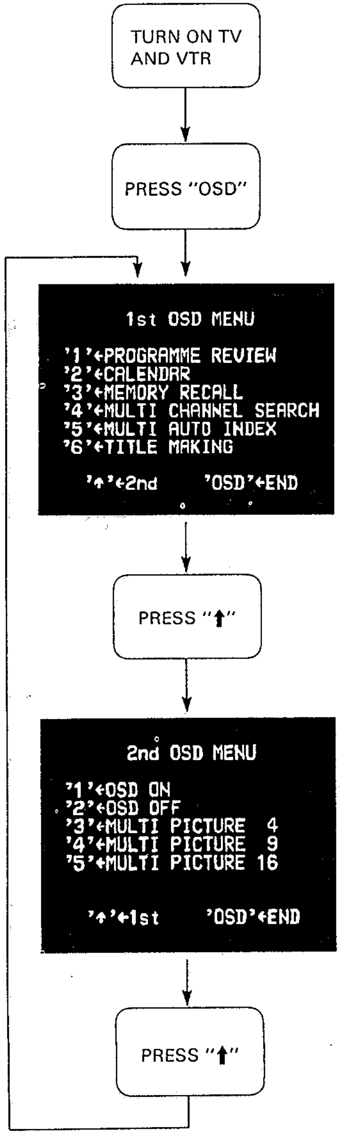

Aerial
To "RF OUT"
TV
To Aerial terminal
To "AERIAL"
To "AUDIO OUT"
To "VIDEO OUT"
VTR
To "AUDIO IN"
To "VIDEO IN"
External equipment (Laser disc player, Camera etc.)
US Pin cord (generally available)

1. Press the CHANNEL select button so as to have "AU" indication light up in the display.
   Note: You can also select "AU" by pressing buttons [9] and [1] on the remote control unit.
2. Press the PinP button while the VTR is playing back a tape. The tape programme will be displayed on the main screen and the picture from the external equipment will be on small screen.
   Note: If you want to view off-the-air TV programme and the picture from external equipment simultaneously, select the channel to be viewed and then press the PinP button. The TV programme (through the VTR's built in tuner) will be displayed on the main screen and the picture from the external equipment will be on small screen.
3. Press the PinP button again. The VTR playback picture will appear on the small screen and the picture from the external equipment will appear on the main screen.
4. Press it once more will return to the ordinary mode.

OSD OPERATION

The OSD function allows you to display the many functions of this VTR on the TV screen so that you can operate them easily and select the required function using the remote control.
You can also demonstrate the major functions of this VTR on the TV screen for your quick understanding. (See page 30)

Basic flow of OSD



```
1st OSD MENU

'1'←PROGRAMME REVIEW
'2'←CALENDAR
'3'←MEMORY RECALL
'4'←MULTI CHANNEL SEARCH
'5'←MULTI AUTO INDEX
'6'←TITLE MAKING

'↑'←2nd      'OSD'←END
```

```
2nd OSD MENU

'1'←OSD ON
'2'←OSD OFF
'3'←MULTI PICTURE  4
'4'←MULTI PICTURE  9
'5'←MULTI PICTURE 16

'↑'←1st      'OSD'←END
```

1 TURN ON THE TV AND VTR.
- The TV must be in the VTR input mode.

2 PRESS THE OSD BUTTON.

3 1ST OSD MENU APPEARS ON THE TV SCREEN.
- The menu items 5 and 6 are not displayed when a cassette is not inserted.
- The menu items 4 through 6 are not displayed when the VTR is in the recording or playing mode.

4 PRESS THE "↑" (CHANNEL ▲) BUTTON.

5 2ND OSD MENU APPEARS ON THE TV SCREEN.

6 PRESS THE "↑" (CHANNEL ▲) BUTTON.
- The TV screen will return to the 1st OSD menu.

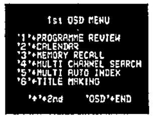
Press the OSD button to return to the normal TV screen. The menu display will automatically disappear if nothing is done for about 1 minute.

OPERATION

Programme review

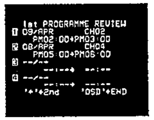
This function is very convenient when you want to check the contents of programmes stored in the VTR.

1. Select the 1st OSD menu.
2. Press button [1].



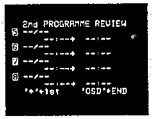
```
1st OSD MENU

'1'←PROGRAMME REVIEW
'2'←CALENDAR
'3'←MEMORY RECALL
'4'←MULTI CHANNEL SEARCH
'5'←MULTI AUTO INDEX
'6'←TITLE MAKING

'↑'←2nd      'OSD'←END
```

3. The contents of programme numbers 1 through 4 will appear.



```
 1st PROGRAMME REVIEW
1 09/APR        CH02
   PM02:00→PM03:00
2 08/APR        CH04
   PM05:00→PM06:00
3 --/--
     --:--→  --:--
4 --/--
     --:--→  --:--
 '↑'←2nd     'OSD'←END
```

4. Press the button "↑" (CHANNEL ▲) to display the contents of programme numbers 5 through 8.
5. The contents of programme numbers 5 through 8 will appear.



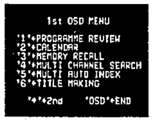
```
 2nd PROGRAMME REVIEW
5 --/--
     --:--→  --:--
6 --/--
     --:--→  --:--
7 --/--
     --:--→  --:--
8 --/--
     --:--→  --:--
 '↑'←1st     'OSD'←END
```

6. Press the button "↑" (CHANNEL ▲) if you want to return the screen to the contents of programme numbers 1 through 4.

Calendar

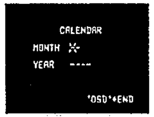
This function accesses the built-in calendar which can display every month from January, 0001 to December, 9999.

1. Select the 1st OSD menu.
2. Press button [2].



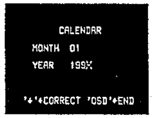
```
1st OSD MENU

'1'←PROGRAMME REVIEW
'2'←CALENDAR
'3'←MEMORY RECALL
'4'←MULTI CHANNEL SEARCH
'5'←MULTI AUTO INDEX
'6'←TITLE MAKING

'↑'←2nd      'OSD'←END
```

3. The programmable calendar menu will appear.



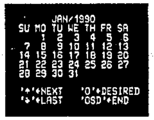
```
      CALENDAR
 MONTH  X-
 YEAR   ----

           'OSD'←END
```

4. Set the month and year by inputting 6 digits.
   For example, press [0] [1] [1] [9] [9] [0] for January, 1990.
   If the incorrect digit is input, press the button "↓" (CHANNEL ▼) to position the flashing cursor over the digit to be corrected, then input the correct digit.
   Always press [0] before a single digit month.



```
      CALENDAR
 MONTH  01
 YEAR   199X

'↓'←CORRECT 'OSD'←END
```

5. The calendar for the month you have input will appear.



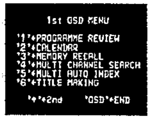
```
        JAN/1990
SU MO TU WE TH FR SA
    1  2  3  4  5  6
 7  8  9 10 11 12 13
14 15 16 17 18 19 20
21 22 23 24 25 26 27
28 29 30 31
'↑'←NEXT    '0'←DESIRED
'↓'←LAST    'OSD'←END
```

6. Press the button "↑" (CHANNEL ▲) to display the calendar of next month or press the button "↓" (CHANNEL ▼) to display the calendar of the previous month.
7. Press button [0] to return the display to the programmable calendar menu shown in step 3.
   Then repeat step 4 above.

Memory recall

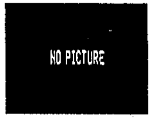
This function allows you to recall the picture stored in memory (by operating "Digital memory feature" on page 25).

1. Select the 1st OSD menu.
2. Press button [3].



```
1st OSD MENU

'1'←PROGRAMME REVIEW
'2'←CALENDAR
'3'←MEMORY RECALL
'4'←MULTI CHANNEL SEARCH
'5'←MULTI AUTO INDEX
'6'←TITLE MAKING

'↑'←2nd      'OSD'←END
```

3. The picture which has previously been stored in memory (by pressing the V.MEMO button) will appear.
   If there is no picture in memory, the TV screen shows "NO PICTURE" for a few seconds.



```
NO PICTURE
```

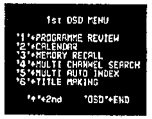
The picture stored in memory can be recorded on tape by following 'Multi-auto index" on page 28.

Multi-channel search

This function displays a still picture of each channel on the screen divided into 4, 9 or 16 multi screens.

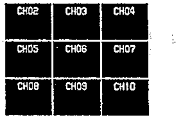
To do this, first select the number of small screens using "Multi picture 4/9/16" on page 29, depending on the number of the channels you can receive them in your area, then set the VTR to the stop mode.

1. Select the 1st OSD menu.
2. Press button [4].
   A still picture of each channel programmed in your VTR's scan list will be displayed together with the channel number.



```
1st OSD MENU

'1'←PROGRAMME REVIEW
'2'←CALENDAR
'3'←MEMORY RECALL
'4'←MULTI CHANNEL SEARCH
'5'←MULTI AUTO INDEX
'6'←TITLE MAKING

'↑'←2nd      'OSD'←END
```

   If the last programme is reached before the screen is filled, the programme with the lowest number will be displayed again.



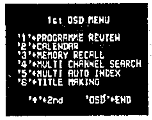
3. Press 2 digits of 10-key pad to select the desired channel.
   The multi-screen will be released and replaced with the programme you have selected.

Multi auto index

Every time you start recording with the REC button, an index mark will be automatically recorded on the tape. (See page 15 for details.)
This feature detects these marks during search and displays the pictures with stop action on the multi screens for up to maximum of 16 programmes. You can also record this multi picture on a tape to display the contents of the tape.

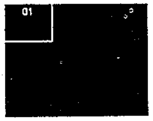
Preparation

- Turn on the VTR and TV.
- Insert a cassette recorded with this VTR.
- Select the number of pictures on the screen with "Multi picture 4/9/16" on page 29, depending on the number of recordings you except on the tape.

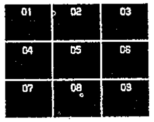


1. Select the 1st OSD menu.
2. Press button [5].
   The INDEX indicator will appear in the display of the VTR.

3. One small screen will appear at the top left and the VTR will be rewound to the beginning of tape then start searching.



4. At the first index mark, the still picture will appear on the small screen with the index number "01". Then searching will be repeated.
   Note: When a new recording is made on the previously recorded tape, the previous INDEX signals may remain without being erased. In this case, the index number may not be "01".



5. The VTR repeats the above steps until the screen is filled by the pictures or the tape reaches the end. The INDEX indicator will disappear from the display of the VTR and then the VTR will rewind the tape to the beginning or to the counter reading "0000" if the counter memory is on. The multi pictures will remain on the TV screen.

To record the multi indexed picture

Operate the following after performing steps 1 — 5 above.

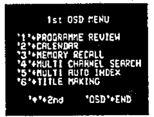
1. Press the PLAY button then REW or F.FWD button to find the position where you want to stop recording the multi indexed pictures.
2. At the position where you want to stop recording, press the RESET and MEMORY buttons to reset the tape counter to "0000" and to display the counter memory mark "M".
3. Press REW button to rewind the tape to the position to start recording. Press the PLAY then PAUSE button. The VTR will enter the play/pause mode.
4. Press the REC button.
   The VTR will enter the record/pause mode. The multi pictures will appear on the TV screen.
5. Press the PAUSE button. The recording will start.
6. The VTR will automatically stop recording at the tape counter reading "0000". The TV screen will change from the multi indexed picture to the normal display.

Notes:

1. The picture that was stored in memory following "Digital memory feature" on page 25 and the title that was made following "Title making" on this page can also be recorded.
   1. Perform steps 1 — 3 above.
   2. Recall the store picture. Operate "Memory recall" on page 27.
   3. Perform steps 4 — 6 above.
2. Multi pictures cannot be recorded on the non-recorded portion of a tape, eg. on completely new tape.

Title making

You can create and record titles on a pre-recorded tape.



1. Select the 1st OSD menu.
2. Press button [6].

3. The programmable title display will appear on the TV screen along with a flashing block.
4. Select the first character position by pressing the button "↑" (CHANNEL ▲) or the "↓" (CHANNEL ▼).
5. Press one of numbered buttons [0] through [9].
   The letters shown in the table on the right are selected using numbered buttons.
6. When the desired character is input, shift the flashing block to the position to be programmed next. Then repeat steps 5 and 6 until the desired title is completed.
7. After completing the desired title, press the V.MEMO button to store the title in memory.
8. To record this title on the tape, see note 1 in "Multi auto index" on this page.

Notes:

- To correct errors during programming press the button "↓" (CHANNEL ▼) or "↑" (CHANNEL ▲) to position the flashing block over the character to be corrected.
  If the button is kept depressed, the flashing block will shift rapidly. Then input the correct digit.
- These titles cannot be recorded on a non-recorded portion of tape.
- The pre-recorded image will still be seen slightly in the title.

Character assignment

Following letters are selected by pressing buttons [0] through [9].

[0]	0	?	!	'
[1]	1	Q	Z	.
[2]	2	A	B	C
[3]	3	D	E	F
[4]	4	G	H	I
[5]	5	J	K	L
[6]	6	M	N	O
[7]	7	P	R	S
[8]	8	T	U	V
[9]	9	W	X	Y

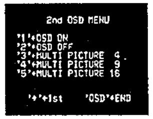
Character size and capacity

You have a choice of three character sizes; medium, large and extra large when making titles.
Press the S.TRACKING button (▲) repeatedly until the desired size appears on the TV screen.
The programmable capacity using each size is as follows;

MEDIUM: 240 characters along 10 lines with 24 characters per line.
LARGE: 144 characters along 6 lines with 24 characters per line.
EXTRA LARGE: 96 characters along 4 lines with 24 characters per line.

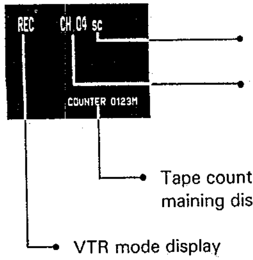
OSD on and OSD off

Whenever you turn on the VTR or change its status — Stop to Play, Play to Stop, change channels, etc. — the new status of the VTR is displayed on the TV screen automatically for a few seconds. You can remove all displays from the screen when they are not needed.



1. Select the 2nd OSD menu.
2. Press button [1] to turn on OSD or the button [2] to turn off OSD.
   If button [1] is pressed, the VTR status will appear on the TV screen for a few seconds.
   If button [2] is pressed, "OSD OFF" will appear on the TV screen for a few seconds.
   Note: This VTR has been preset at the factory to "OSD ON".

Contents of display



Simulcast display

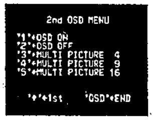
Channel display (including "AUX" for auxiliary input)

Tape counter display or Tape remaining display

VTR mode display
"REC" for record, "PLAY ▶" for play, "▶▶" for fast forward, "◀◀" for rewind, "REC ❚❚" for record/pause and "STOP" for stop.

Multi picture 4/9/16 (Selecting number of multi pictures)

You can divide your TV screen into 4, 9, or 16 small screens which can be used for Digital Multi Strobe, Multi Channel Search or Multi Auto Index.



1. Select the 2nd Menu.
2. Press button [3] for 4 screens, button [4] for 9 screens or button [5] for 16 screens.

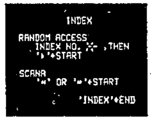
Notes:

- This VTR has been shipped from the factory with "9 screens".
- The pictures displayed in the 4 or 16 screens have slightly different tint and resolution from the original pictures.

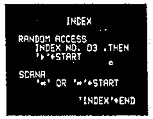
Tape indexing

Tape indexing allows you to search the required programmes easily using INDEX signals that are recorded automatically each time a recording is started.
These are two methods of indexing.
One is a Random Access Indexing.
This is the direct recall of the desired programme by inputting the index number which is easily found from the multi indexed picture made by "Multi auto index" as described on page 28 or a programme number which can be listed on a label stuck on your video cassette.
The other is Scana Indexing in which the first few seconds of all recordings can be viewed during searching. This also allows you to jot down all recording on the tape easily.

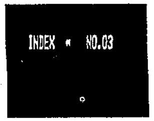
Random Access Indexing



1. Press the INDEX button during the stop mode.
   The index menu will appear.



2. Press two buttons of the 10-key pad to select the desired programme number.
   Note: Up to a maximum number of 99 programmes can be selected.



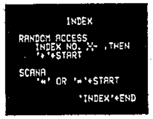
3. Press the PLAY button (▶).
   You may press the REW or F.FWD button instead of play.
4. The VTR will automatically search for the programme you selected.
   During search, the selected index number and the direction of searching is displayed on the TV screen.
5. When the programme you selected is located, the VTR will automatically begin play and the INDEX indicator on the VTR will be turned off.

Notes:

- If this is the first time you have used Tape Indexing since the cassette was inserted, the VTR rewinds the tape to the beginning to start counting index marks. If this is not the first time Tape Indexing is used, the VTR can count the index marks without returning to the beginning.
- To use Tape Indexing, the tape must have been recorded by a VTR with the INDEX feature.

Scana Indexing

1. Press the INDEX button during the stop mode. The index menu will appear.

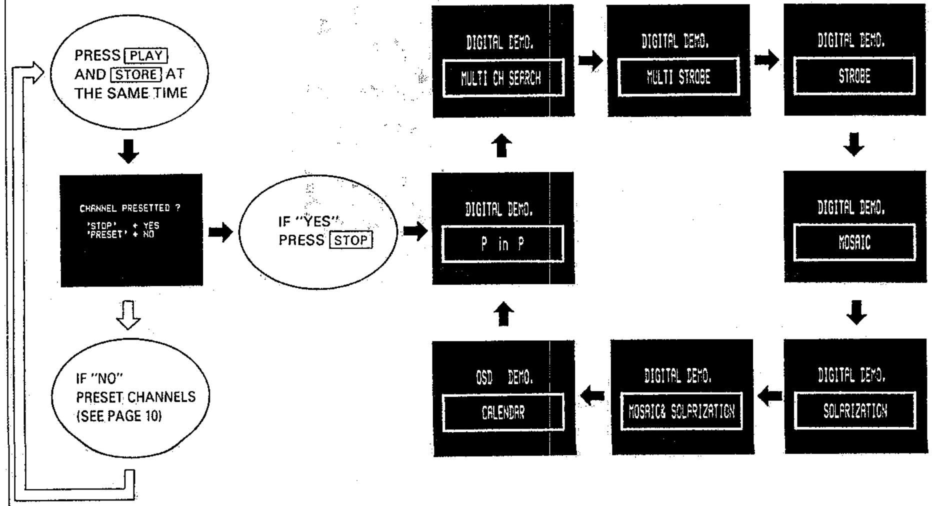


2. Press the REW or F.FWD button. The tape will be rewound or fast forwarded until an index mark is detected.

3. When the VTR has located an index mark, it will enter the forward search mode for approximately 10 seconds of the programme following the mark. This is long enough for you to recognize the programme. Then the VTR winds tape to the next index mark in sequence.
   Note: With an audio-only tape, every time an INDEX signal is reached, the tape will be played for 10 seconds.
4. When you see the programme you want to watch, press the PLAY button. The INDEX indicator on the VTR will be turned off.

Digital and OSD effects demonstration

You can demonstrate the digital and OSD effects used in this VTR following the procedure below. Remove the cassette before the demonstration.



NOTES

- Press OPERATE to release the demonstration.
- After about 5 minutes, the demonstration is automatically released.

TIMER RECORDING

The programmable electronic clock/timer permits the unattended recording of 8 preselected programmes within a period of 1 year, including the same programme(s) repeated on every day and the same programme(s) every week. It turns the unit on and off and selects the channel automatically.

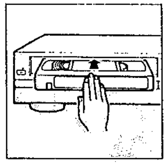
The timer can also be programmed with the remote control unit provided. See the supplementary manual for more details on programming procedures with the remote control unit.

Preparations for timer recording

- Your TV does not have to be on to make a recording because the VTR records TV programmes without the aid of your TV. Its only use is for monitoring.

1 Make sure that the clock shows the present time and day correctly.

2 Insert a cassette.
Be sure to check that the record safety tab is not missing. If the record safety tab is missing, recording will not begin.

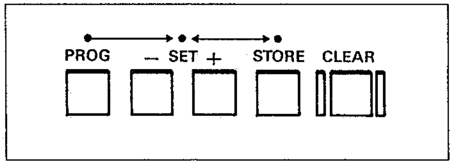


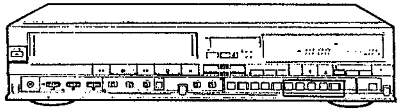
3 Programme the timer.

Programming the timer for unattended recording

For unattended recording the timer needs to know what **day** to make the recording, the **time to start**, the **time to stop**, and the **channel to be recorded.**

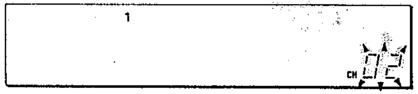
The buttons for programming the timer are in the secondary control door; PROGRAM, SET and STORE buttons. If you input erroneous information by mistake when prrogramming the timer, press the CLEAR button and input the correct information again.





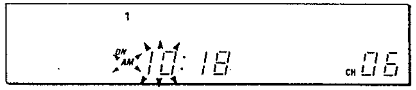
User's controls

1 Press the PROGRAMME button.



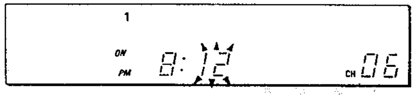
An unused programme number is automatically selected from numbers 1 to 8 in numerical order and the channel number will start flashing.
NOTE: Check the programme numbers in the display before pressing the PROGRAMME button.
The timer allows up to 8 programmes to be stored, but when all programme numbers 1 to 8 are lit in the display, no programming can be performed. To input a programme at this time, clear one of the 8 programme numbers (see "To clear a programme"). When the PROGRAMME button is pressed while all the 8 programme numbers are lit, the "FUL" indicator will light to warn you. (When the BUZZER switch is ON in this state, a beep sound will be heard to warn you.)

2 Choose the channel to be recorded by pressing the SET or CHANNEL select button. Then press the STORE button. Hour starts flashing.



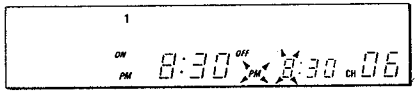
For example, the above diagram shows that channel 6 has been set.

3 Select the hour for recording to start by pressing the SET button (Forward or Reverse). Hold down the button to advance it rapidly.
Press the STORE button after selecting the hour for recording to start.
Minute starts flashing.



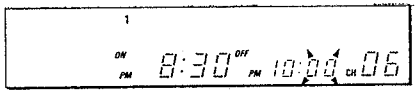
For example, the above diagram shows "PM 8" hours has been set.

4 Select the minutes for recording to start by pressing the SET button (Forward or Reverse). Hold down button to advance it rapidly. Press the STORE button after selecting the minute for recording to start. "OFF" will appear and hour starts flashing.

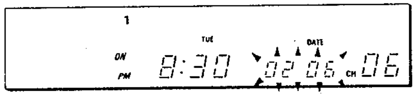


For example, the above diagram shows that "30" minutes has been set.

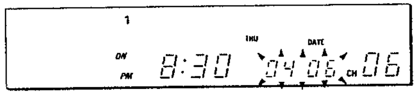
5 Select the hour and minute to stop recording by the same procedures described in steps 3 and 4.



For example, the above diagram shows "PM 10:00" has been set.
Be sure to press the STORE button after selecting the minute. The current date appears and starts flashing.



6 Press the Forward SET (+) button to select the day and month of recording.

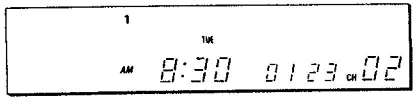


For example, the above diagram shows recording on the 4th of June.

Notes:

- Day of week appears automatically.
- If you want to start recording on the current day, simply press the STORE button.
- The above diagram shows how to record a programme on a single day. To record a programme at the same time on every day or to record it on one certain day of each week, follow the procedure described below.

After setting the day and month press the STORE button. The programme indicator flashes and the display shows both start and stop times in a few seconds. Then display shows start time and date. Finally the display returns to normal together with lighting programme number.

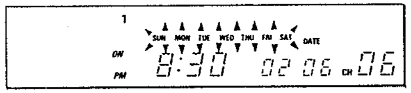


NOTES:

To record a programme at the same time every day of week or to record a programme on a specified day at the same time each week, perform the following step instead of step 6 above.

To record at the same time every day of the week

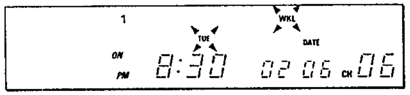
Press the Reverse SET (—) button **once.** All day indicators light.
If you press the button twice or more, press the button until all day indicators light. Hold down the button to advance rapidly.



Then press the STORE button.

To record at the same time on a specified day each week

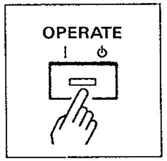
Press the Reverse SET (—) button until the desired day indicator lights along with letters "WKL". Hold down the button to advance it rapidly.



Then press the STORE button.

Now, one programme has been completed.

7 Turn off the OPERATE switch. The "⏲" indicator will come on.

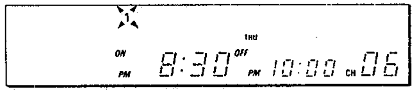


Notes:

1. If the erase prevention tab is removed, the cassette is ejected automatically and "⏲" indicator will flash.
   Stick a piece of cellophane tape over the erase prevention hole on the cassette to enable recording.
2. The "⏲" indicator will flash, if a cassette is not inserted.

To clear a programme

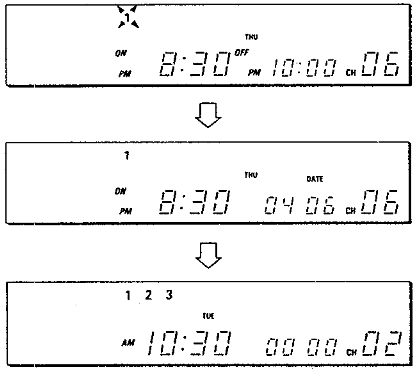
1 Press the Forward SET button (+) until a programme number (and start/stop times) to be cleared appears.



2 Press the CLEAR button.
The display returns to the clock time display and the cleared programme number disappears.
Be sure to press the CLEAR button while the display shows the start/stop times or start time/start date. The programming does not clear if the CLEAR button is pressed after the display has returned to the clock time display.

To check programming

Press the Forward SET button (+).
The programme indicator "1" flashes. If the programme No. 1 has been already programmed, both start and stop times are displayed. After a few seconds the display shows start time and start date. The display then automatically returns to the present time of day.
When the clock display reappears, press the Forward SET button (+) again to check the next programme.
If that programme number has not been used, only programme number will appear.

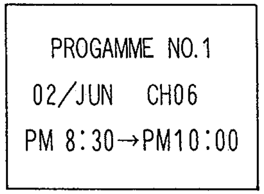


Programming errors

If programmes overlap, the VTR will select the programme with the earlier start time. When that programme is over, the VTR will switch to the next programme. If the start times are the same, the VTR will select the programmes in numerical order.

NOTE: If a power failure occurs, the programmed information will be maintained. However, if the power failure continues for 15 minutes or longer, the present time will be erased.

NOTE: When the information programmed by operating remote control unit provided is transferred to the VTR, the programmed information is displayed on the TV screen for about 8 seconds.

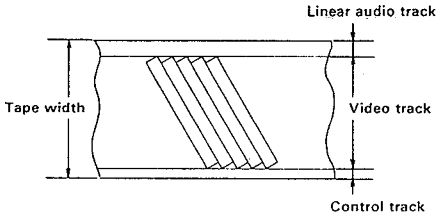


PROGAMME NO.1
02/JUN CH06
PM 8:30→PM10:00

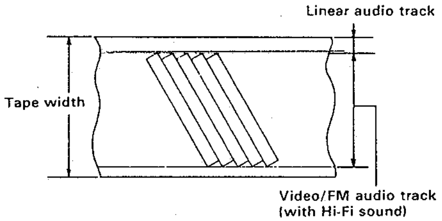
Hi-Fi VHS

Hi-Fi VHS video recorders record sound using two systems simultaneously.
One system records the linear audio track as with conventional recorders and the other records an FM (frequency modulated) audio signal together with the video track.

1. **Differences between conventional and Hi-Fi VHS recorders**
   - **Conventional recorder**
     The audio signal is recorded on the linear audio track and the video signal is recorded on the video track.

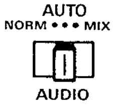


   - **Hi-Fi recorder**
     Audio signals are recorded on the video track together with the video signal as well as on the linear audio track. The audio signals recorded on the video track are frequency modulated.



2. **Advantages of Hi-Fi VHS recorders**
   As the sound is recorded after frequency modulation, it has the following advantages.
   - Excellent frequency response
   - Less noise and distortion
   - Wide dynamic range

   In addition to these advantages since the two rotary heads are used to record and play back the audio signals, the relative speed of the tape and heads is 200 times the relative speed of the tape and head in the linear audio track in the VTR mode so that wow and flutter is below the measureable limit.
3. **Recording stereo broadcasts**
   - Separate left and right channel audio signals are recorded on the Hi-Fi audio track so that stereo broadcasts can be recorded in stereo.
   - Stereo broadcasts are also recorded as monaural on the linear audio track.
4. **Audio dubbing**
   - The sound is recorded on the linear track. (The previously recorded sound will be erased.)
   - The sound on the Hi-Fi track remains without being erased.
   - The required sound on the dubbed tape can be heard during playback by changing over the AUDIO select switch.
5. **AUDIO SELECT SWITCH**
   This selects between Hi-Fi and linear audio in playback.



   - Normally set to "AUTO".
     When a tape recorded on both Hi-Fi and linear audio tracks (for example, the tapes recorded with your VTR) is played back, Hi-Fi audio is automatically played back; when a tape without Hi-Fi audio is played back (for example, the tapes recorded with the VTR that is not provided with Hi-Fi VHS), linear audio is automatically played back.
   - When the switch is set to the "NORM" position, only the linear audio track is played, even if the tape was recorded with Hi-Fi audio tracks.
   - When the switch is set to the "MIX" position, both Hi-Fi and linear audio tracks are mixed.

   Notes:
   1. When the sound becomes unstable during Hi-Fi playback, the sound is muted temporarily. If the sound deteriorates even more, it switches over and plays back linear audio.
   2. As rotary heads are used to pick up the Hi-Fi audio track, the heads and tape transport system are more likely to become dirty due to dust and magnetic particles from the tape when compared with an audio cassette recorder or reel-to-reel deck. When the heads get dirty, the Hi-Fi sound may not be heard or may be interrupted. If this happens, consult you dealer or Hitachi service center.
6. **Compatibility of tapes recorded by this recorder and tapes recorded by recorders not equipped to record Hi-Fi sound**
   Because the audio signal is recorded on the linear audio track together with the Hi-Fi signal, tapes recorded by this recorder can be played back on conventional recorders and tapes recorded by other recorders without Hi-Fi can be played by this recorder.

DISASSEMBLY

1. IDENTIFICATIONS AND LOCATIONS OF CIRCUIT BOARDS

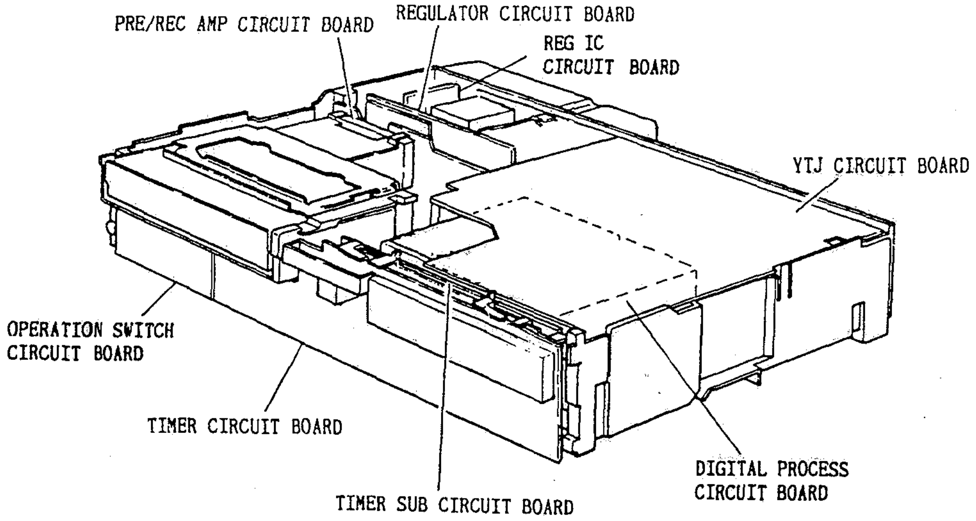

PRE/REC AMP CIRCUIT BOARD
REGULATOR CIRCUIT BOARD
REG IC CIRCUIT BOARD
YTJ CIRCUIT BOARD
OPERATION SWITCH CIRCUIT BOARD
TIMER CIRCUIT BOARD
DIGITAL PROCESS CIRCUIT BOARD
TIMER SUB CIRCUIT BOARD

Fig. 1-1 Top View

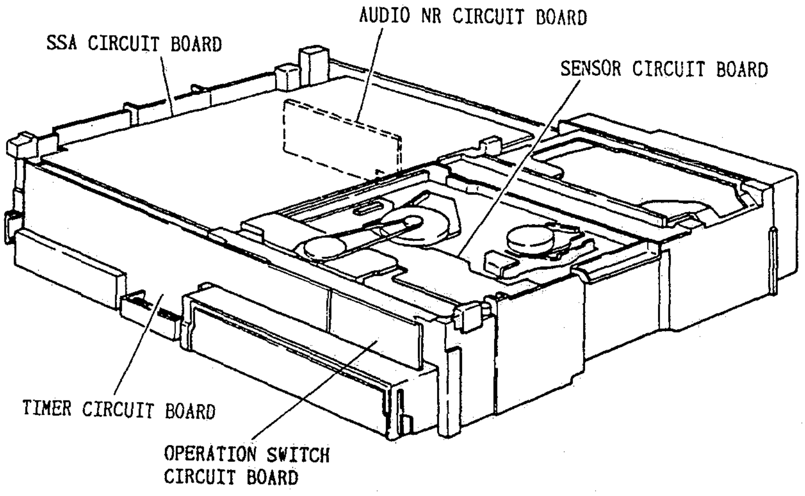
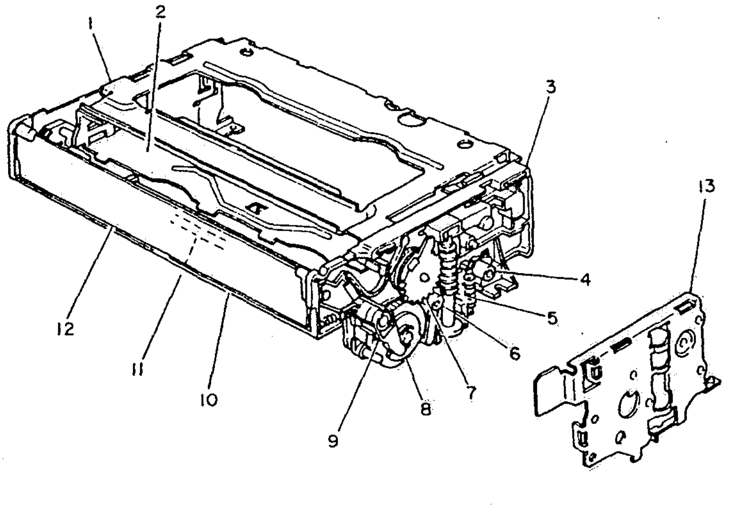

AUDIO NR CIRCUIT BOARD
SSA CIRCUIT BOARD
SENSOR CIRCUIT BOARD
TIMER CIRCUIT BOARD
OPERATION SWITCH CIRCUIT BOARD

Fig. 1-2 Bottom View

2. IDENTIFICATIONS AND LOCATIONS OF MAIN MECHANICAL COMPONENTS


1
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1. CHASSIS HOLDER
2. CASSETTE HOLDER
3. GEAR BRACKET
4. SWITCH LEVER B
5. FL WORM GEAR
6. SWITCH LEVER A
7. WORM WHEEL
8. DRIVE GEAR
9. DOOR ARM
10. FRONT HOLDER
11. SHAFT PIN
12. CASSETTE DOOR
13. SIDE CHASSIS

Fig. 2-1 Cassette Loading Mechanism

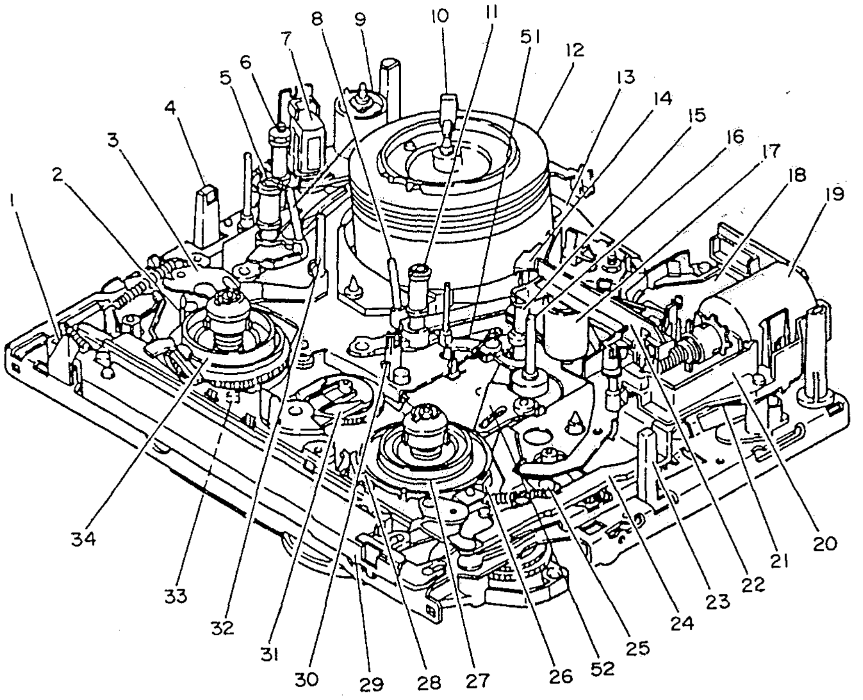


Fig. 2-2 Top View of Mechanism

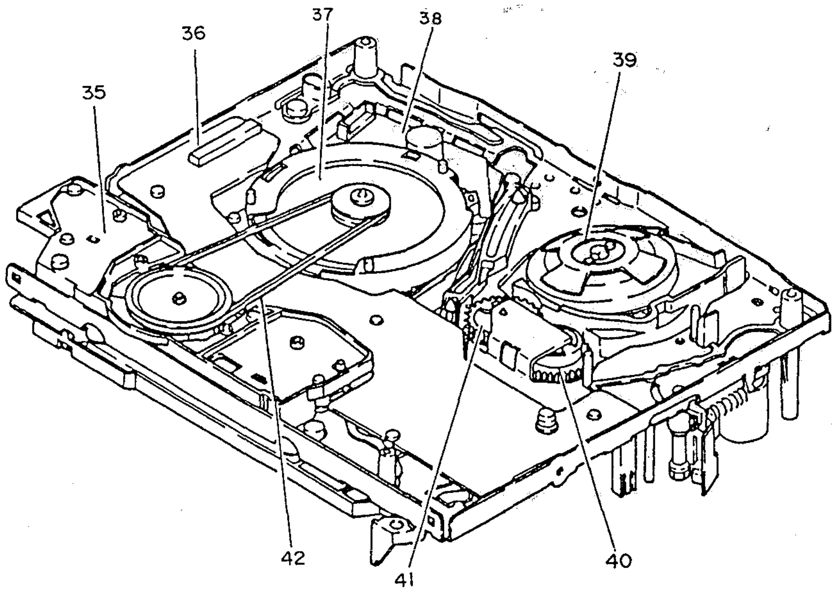


Fig. 2-3 Bottom View of Mechanism

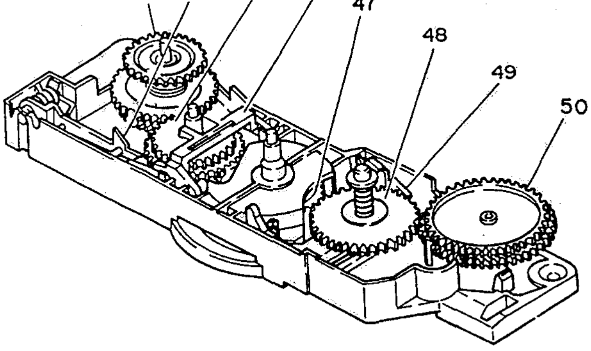


Fig. 2-4 Clutch Base

1. SAFETY ARM
2. TENSION BAND ASSEMBLY
3. TENSION ARM
4. SUPPLY REEL SENSOR
5. SUPPLY GUIDE ROLLER
6. SUPPLY GUIDE POLE
7. FULL ERASE HEAD
8. INCLINED GUIDE
9. IMPEDANCE ROLLER
10. STATIC DISCHARGE BRUSH
11. TAKE-UP GUIDE ROLLER
12. CYLINDER MOTOR ASSEMBLY
13. CYLINDER BASE
14. AUDIO/CONTRL (A/C) HEAD
15. TAKE-UP POLE
16. CAPSTAN SHAFT
17. PRESSURE ROLLER ASSEMBLY
18. MECHANISM STATE SWITCH
19. LOADING MOTOR ASSEMBLY
20. LOADING MOTOR HOLDER
21. LOAD BRACKET
22. CASSETTE LID OPENER
23. TAKE-UP REEL SENSOR
24. BRAKE LINK ARM
25. PRESSURE ROLLER OPERATION ARM
26. TAKE-UP BRAKE ASSEMBLY
27. TAKE-UP REEL DISK
28. TAKE-UP MAIN BRAKE
29. SLIDER BLOCK ASSEMBLY
30. END LAMP
31. REEL DRIVE IDLER
32. TENSION POLE
33. SUPPLY MAIN BRAKE
34. SUPPLY RELL DISK
35. CLUTCH BASE ASSEMBLY
36. SENSOR P.C.B
37. CAPSTAN MOTOR
38. CAPSTAN MOTOR P.C.B
39. CYLINDER MOTOR ASSEBLY
40. SUPPLY LOADING GEAR
41. TAKE-UP LOADING GEAR
42. REEL BELT
43. TAKE-UP GEAR
44. CLUTCH ARM
45. CHANGE GEAR
46. CHANGE ARM
47. TAKE-UP PULLEY
48. FL CHANGE GEAR
49. FL CHANGE ARM
50. RELAY GEAR
51. HALF LOADING ARM
52. RELAY ARM

3. CASE REMOVAL

1. Preset Door
2. Top Cover
3. Bottom Cover
4. Front Panel
5. Rear Panel
6. Remote Controller

The numbers in parantheses in the illustrations show the order of removal.

1. Preset Door (Fig. 3-1)

1) Open the preset door and, while depressing the attachment sections, pull the door in the direction of the arrows.

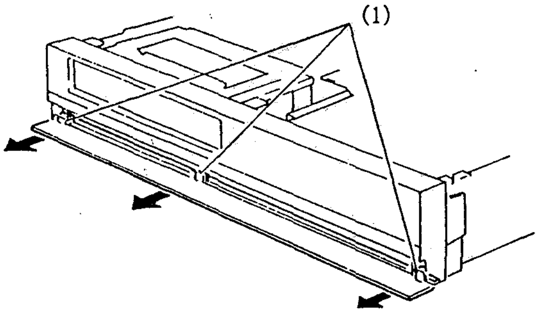


Fig. 3-1 Preset Door

2. Top Cover (Fig. 3-2)

1) Remove five (5) screws.
2) Lift up the rear of the top cover and slide the entire cover backwards.

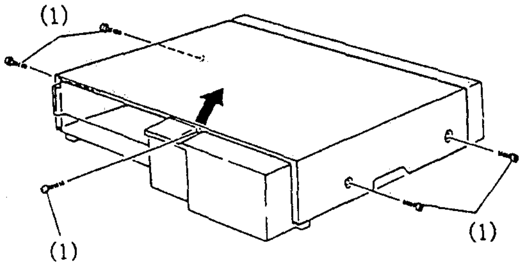


Fig. 3-2 Top Cover

3. Bottom Cover (Fig. 3-3)

1) Remove three (3) screws to take out the bottom supports on the left and right.
2) Remove five (5) screws. Lift up the rear of the bottom cover.

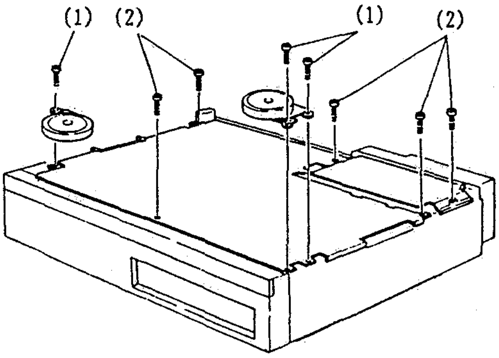


Fig. 3-3 Bottom Cover

4. Front Panel (Fig. 3-4)

1) Remove the preset door and the top and bottom covers. (See items 1,2 and 3)
2) Release eight (8) stoppers.
3) Pull out the bottom of the front panel and remove the entire panel.

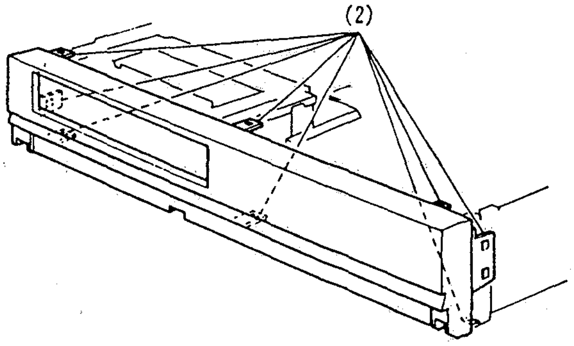


Fig. 3-4 Front Panel

5. Rear Panel (Fig. 3-5)

1) Remove the top cover. (See items 2)
2) Open the YTJ circuit board. (See item 3 in the section on circuit board removal)
3) Remove two (2) nylon rivets.
4) Remove one (1) screw holding the video I/O jacks and remove two (2) screws holding the PERI connector.
5) Release one (1) stopper holding the RF converter and pull out the rear panel backwards.

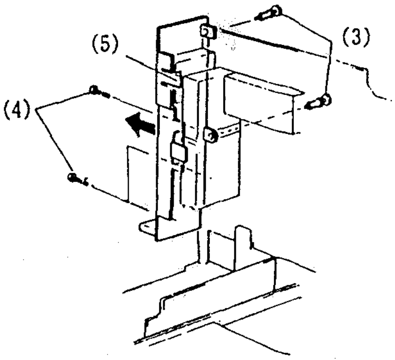


Fig. 3-5 Rear Panel

6. Remote Controller (Fig. 3-6)

1) Remove one (1) screw.
2) Remove the battery compartement.
3) Release two (2) stoppers while pressing section (A) and then release the remaining stoppers in sequence. (There are eight (8) stoppers in all)

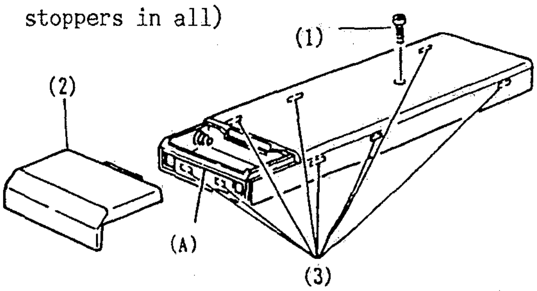


Fig. 3-6 Remote Controller

4. CIRCUIT BOARD REMOVAL

1. Timer/Operation Switch Circuit Boards
2. Timer Sub Circuit Board
3. YTJ Circuit Board
4. SSA Circuit Board
5. Audio NR Circuit Board
6. Regulator Circuit Board
7. Pre/Rec Amp Circuit Board
8. Sensor Circuit Board
9. Digital Process Circuit Board

1. Timer/Operation Switch Circuit Boards (Fig. 4-1)

1) Remove the top and bottom covers, front panel, preset door and the rear panel. (See items 1 to 5 in the section on case removal)
2) Release seven (7) stoppers and remove the block containing the timer and timer sub circuit boards.
3) Disconnect six (6) flat cables from the timer sub circuit board.
4) Release three (3) stoppers holding the circuit board holder.

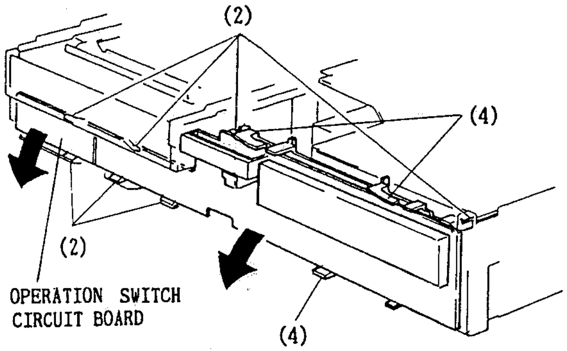


Fig. 4-1 Timer/Operation Switch Circuit Boards

2. Timer Sub Circuit Board (Fig. 4-2)

1) Remove the top and bottom covers, front panel, preset door and the rear panel. (See items 1 to 5 in the section on case removal)
2) Remove the block containing the timer and timer sub circuit boards. (See item 1)
3) Disconnect six (6) flat cables and four (4) connectors from the timer sub circuit board.
4) Release two (2) stoppers holding the circuit board holder and tilt the top of the timer sub circuit board to remove it.

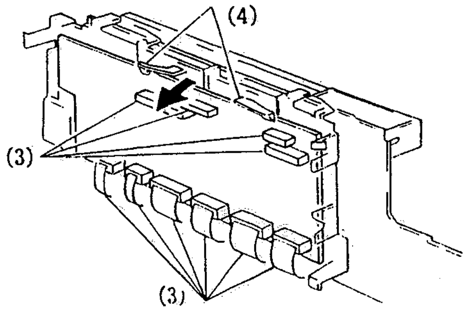


Fig. 4-2 Timer Sub Circuit Board

3. YTJ Circuit Board (Figs. 4-3, 4-4)

1) Remove the top cover. (See item 2 in the section on case removal)
2) Remove the rear piece and one (1) screw to release the ground wire.
3) Remove three (3) screws.
4) Release three (3) stoppers and open the YTJ circuit board in the direction of the arrow.
5) Disconnect nine (9) connectors and one (1) flat cable.
6) Disconnect the connector connected to the SSA circuit board.

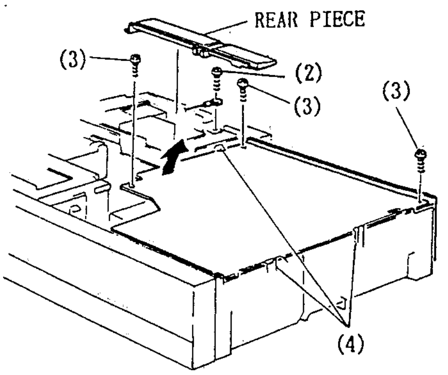


Fig. 4-3 YTJ Circuit Board

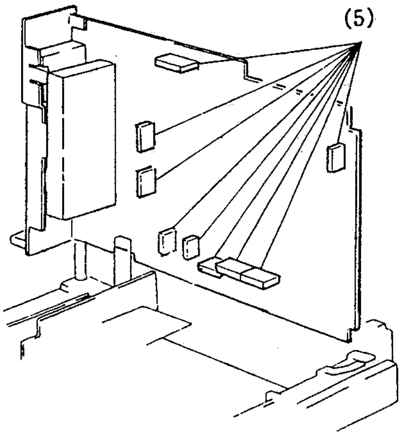


Fig. 4-4 YTJ Circuit Board

4. SSA Circuit Board (Figs. 4-5, 4-6)

1) Remove the top and bottom covers. (See items 2 and 3 in the section on case removal)
2) Remove two (2) screws.
3) Disconnect the connector from the capstan motor and the flat cable from the sensor circuit board.
4) Release four (4) stoppers holding the circuit board and open the circuit board in the direction of the arrow.
5) Disconnect fourteen (14) connectors.
6) Disconnect the connector and flat cable connected to the YTJ circuit board.

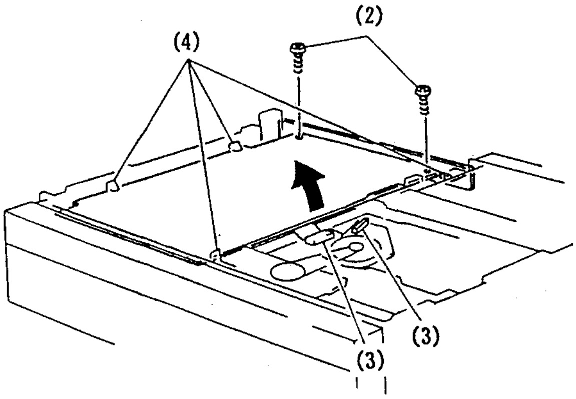


Fig. 4-5 SSA Circuit Booard

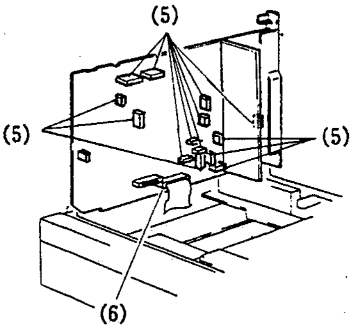


Fig. 4-6 SSA Circuit Board

5. Audio NR Circuit Board (Fig. 4-7)

1) Remove the bottom cover. (See item 3 in the section on case removal)
2) Open the SSA circuit board. (See item 4)
3) Pull out the audio NR circuit board in the direction of the arrow.

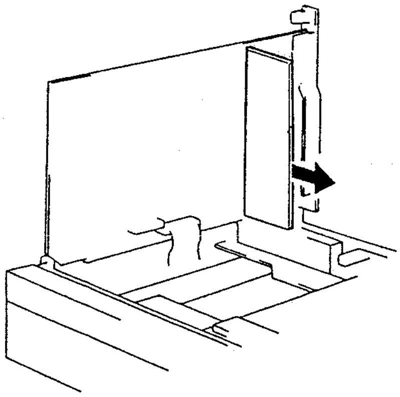


Fig. 4-7 Audio NR Circuit Board

6. Regulator Circuit Board (Figs. 4-8 to 4-10)

1) Remove the top cover. (See item 2 in the section on case removal)
2) Remove one (1) screw holding the bottom cover.
3) Release two (2) stoppers to remove the rear piece.
4) Disconnect four (4) connectors from the regulator circuit board.
5) Remove three (3) screws and lift up the regulator circuit block to pull it out.
6) Remove two (2) regulator IC retaining screws near the heat sink.
7) Remove four (4) screws holding the power transformer.
8) Remove one (1) screw holding the regulator circuit board and remove the circuit board and power transformer from the regulator holder.
9) Release three (3) P.C.B supports and open the regulator circuit board in the direction of the arrow for servicing.

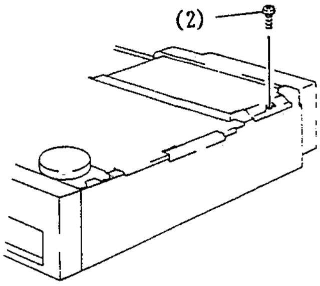


Fig. 4-8 Regulator Circuit Block

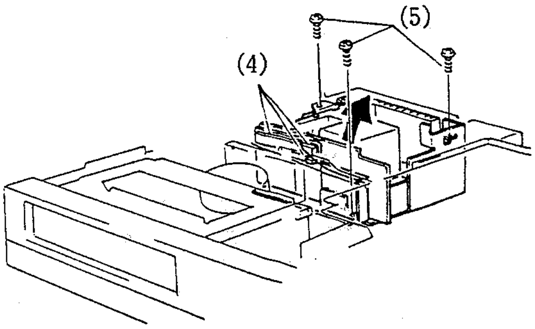


Fig. 4- 9 Regulator Circuit Block

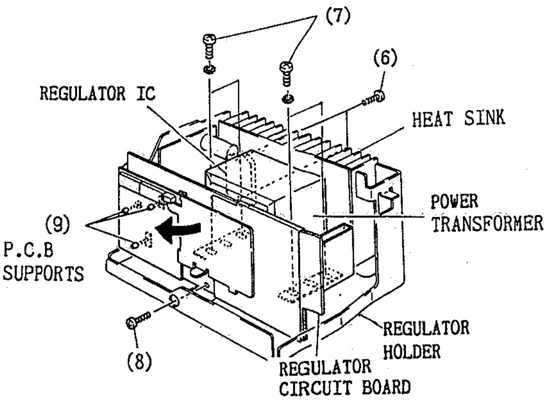


Fig. 4-10 Regulator Circuit Board

7. Pre/Rec Amp Circuit Board (Fig. 4-11)
1) Remove the top cover. (See item 2 in the section on case removal)
2) Disconnect two (2) connectors.
3) Remove one (1) screw.
4) Disconnect the connector connected to the cylinder motor while lifting up the pre/rec amp circuit board.

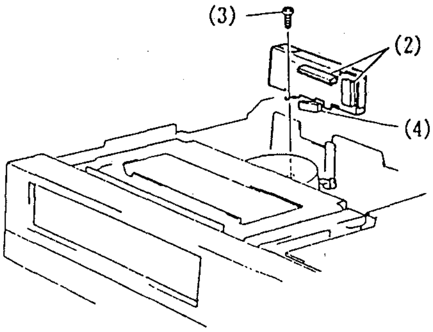


Fig 4-11 Pre/Rec Amp Circuit Board

8. Sensor Circuit Board (Fig. 4-12)
1) Remove the bottom cover. (See item 3 in the section on case removal)
2) Disconnect the flat cable and connector from the sensor circuit board.
3) Disconnect the connector from the cylinder motor circuit board.
4) Remove four (4) screws and lift up the sensor circuit board.

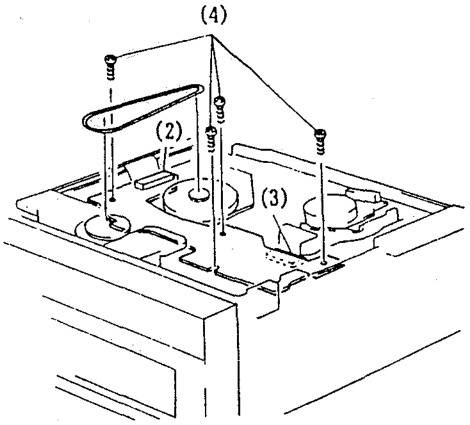


Fig. 4-12 Sensor Circuit Board

9. Digital Process Circuit Board (Fig. 4-13)
1) Remove the top cover. (See item 2 in the section on case removal)
2) Open the YTJ circuit board. (See item 3)
3) Remove one (1) screw.
4) Disconnect four (4) connectors.
5) Release three (3) stoppers.

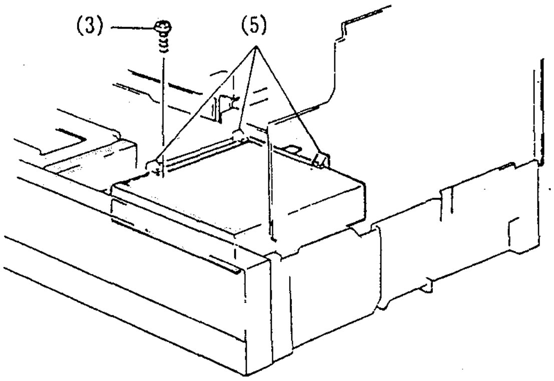


Fig. 4-13 Digital Process Circuit Board

5. CASSETTE LOADING MECHANISM REMOVAL
1. Cassette Loading Mechanism and Cassette Door
   * Components listed below are described as if the top and bottom covers, front panel and the cassette loading mechanism have already been removed. (See items 2 to 4 in the section on case removal and item 5-1 in the section on cassette loading mechanism removal.)
2. Loading Gear Assembly, Chassis Holder, Cassette Holder Assembly and Front Holder
3. Cassette Holder Base and Cassette Holders (L/R)

1. Cassette Loading Mechanism and Cassette Door (Fig. 5-1)

Cassette Loading Mechanism
1) Remove the top cover and front panel. (See items 2 and 4 in the section on case removal.)

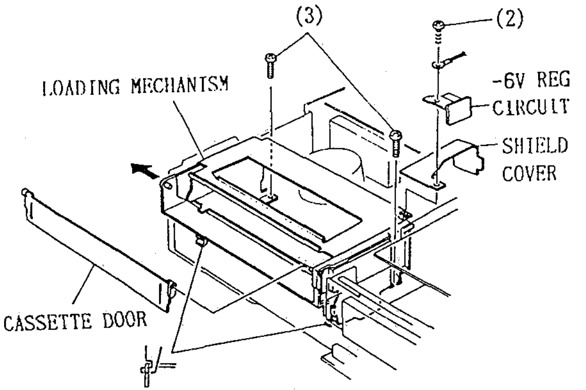


Fig. 5-1 Cassette Loading Mechanism and Cassette Door

2. Loading Gear Assembly, Chassis Holder, Cassette Holder Assembly and Front Holder

Loading Gear Assembly (Fig. 5-2)

1) Release two (2) tabs that engage with the chassis holder and one (1) tab that engages with the front holder, then separate the loading gear assembly.

Chassis Holder

2) Release two (2) tabs that engage with the front holder.

Cassette Holder Assembly

3) Separate the drive gear and remove the cassette holder assembly.

Front Holder

4) Remove the shaft pin and drive arm L.

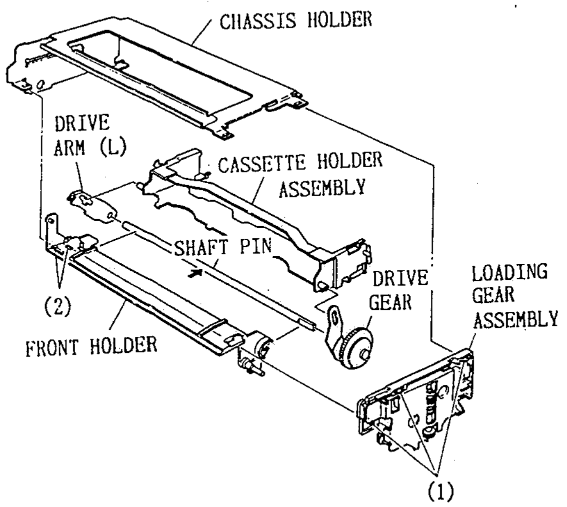

CHASSIS HOLDER
DRIVE ARM (L)
CASSETTE HOLDER ASSEMBLY
SHAFT PIN
DRIVE GEAR
LOADING GEAR ASSEMBLY
(2)
FRONT HOLDER
(1)

Fig. 5-2 Loading Gear Assembly, Chassis Holder, Cassette Holder Assembly and Front Holder

3. Cassette Holder Base and Cassette Holders (L/R) (Fig. 5-3)

Cassette Holder Base

1) Release four (4) tabs on the L/R cassette holders.

Cassette Holders (L/R)

2) Release the tabs on the cassette holders L/R and pull out the holders.

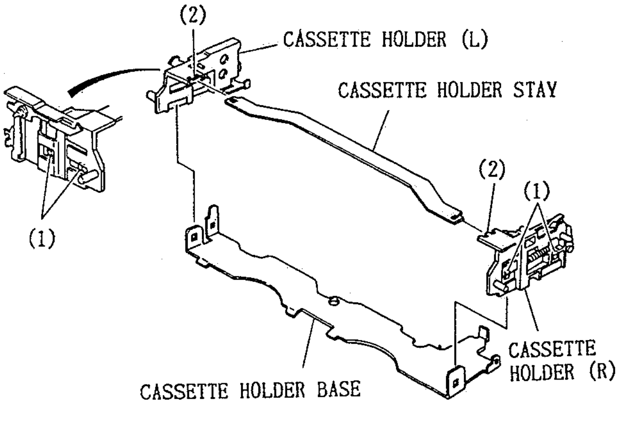

(2)
CASSETTE HOLDER (L)
CASSETTE HOLDER STAY
(1)
(2)
(1)
CASSETTE HOLDER (R)
CASSETTE HOLDER BASE

Fig. 5-3 Cassette Holder Base and Cassette Holders (L/R)

[Cautions when reinstalling]

Reinstall the components by the reverse procedure to removal, taking care of the following items.

- * Check that two (2) bosses of the cassette holder are inserted into the grooves on the left of the chassis holder.
- * When reinstalling the loading gear assembly, check that two (2) bosses of the cassette holder are inserted into the grooves on the right of the chassis holder.
- * Check that marking (△) on the synchro gear and marking (◇) on the clutch gear are aligned.
- * Check that the boss of cassette switch lever (A) is set to the cam of the synchro gear.
- * When reinstalling the cassette door, check that the boss of the door arm is inserted into the groove in the cassette door.

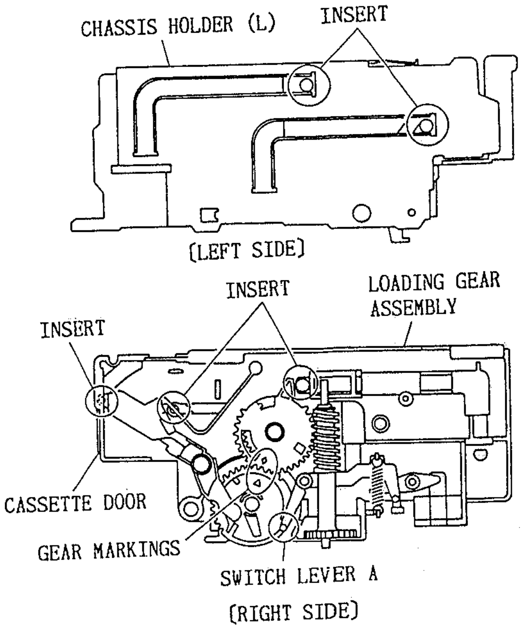

CHASSIS HOLDER (L)
INSERT
[LEFT SIDE]
INSERT
LOADING GEAR ASSEMBLY
INSERT
CASSETTE DOOR
GEAR MARKINGS
SWITCH LEVER A
[RIGHT SIDE]

Fig. 5-4

6. LOADING GEAR REMOVAL

Side Chassis, FL Worm Gear, Door Arm, Worm Wheel and Switch Levers A/B (Fig. 6-1)

Side Chassis

1) Release four (4) tabs that engage with the loading gear assembly.

FL Worm Gear

2) Pull out the FL worm gear.

Door Arm

3) Remove the spring between the door arm and gear bracket.

4) Pull out the door arm.

Worm Wheel

5) Pull out the worm wheel.

Switch Levers A/B

6) Remove the spring between switch lever (A) and the gear bracket.

7) Pull out switch levers (A) and (B).

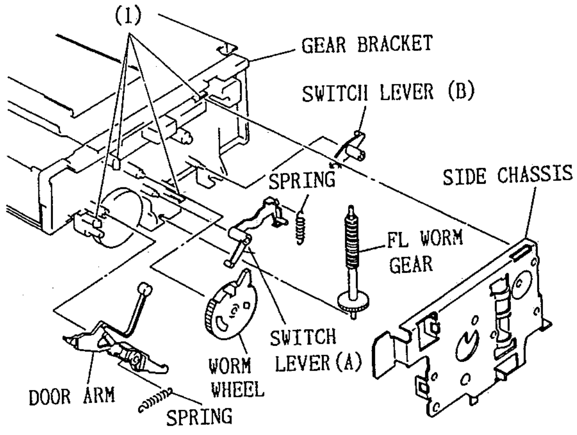


Fig. 6-1 Side Chassis, FL Worm Gear, Door Arm, Worm Wheel and Switch Levers A/B

7. MAIN MECHANICAL COMPONENTS REMOVAL

1. Heads
   - ° Impedance Roller/FE (Full Erase) Head
   - ° A/C (Audio/Control) Head

Motors and Sensors

2. Cylinder Motor Assembly
3. Capstan Flywheel Motor
4. Loading Motor, Mechanism State Switch Assembly and Dew Sensor

Miscellaneous

5. Tension Arm, Tenstion Band
6. Slider Block, Reel Drive Gear
7. Supply/Take-up Reel Disks, Half Loading Arm and Relay Arm
8. Rollers and Guides
   - ° Pressure Roller
   - ° Supply Guide Pole
   - ° Take-up Guide Pole
   - ° Supply/Take-up Guide Rollers
9. Loading Motor Assembly, Brake Link Arm and FS Brake Arm
10. Load Bracket Assembly and Take-up Brake
11. Brake Operation Arm, Mode Gear, Worm Wheel, Pressure Roller Operation Arm, Mode Change Arm and Brake Lift Arm
12. Cylinder Motor Base and Supply/Take-up Loading Arms
13. Take-up Pulley and Clutch Gear Assembly
14. Take-up Gear, Change Arm, Change Gear, FL Change Gear and FL Change Lever

1. Head

Impedance Roller/FE (Full Erase) Head (Fig. 7-1)

1) Remove the top cover. (See item 2 in the section on case removal)
2) Remove the spring between the FE head base and chassis.
3) Disconnect the connector.
4) Remove the nut holding the guide pole and pull out the pole.
5) Release one (1) tab and remove the impedance roller/FE head.
6) To separate the FE head, release two (2) tabs and pull out the FE head.

A/C (Audio/Control) Head

7) Disconnect the connector.
8) Remove the nut holding the head base and pull the base up and out.
   * Hook the bottom of the spring under the head base to the chassis and the top to the stopper of the head base.

[Cautions when reinstalling]

* Check that the spring section of the A/C head retaining screw protrudes 6.3 mm above head base (1)

* Check that head bases (1) and (2) are parallel.

[Adjustments after reinstallation]

A/C Head Adjustment
X-Value Adjustment
Audio Playback Level Adjustment
Audio Bias Level Adjustment

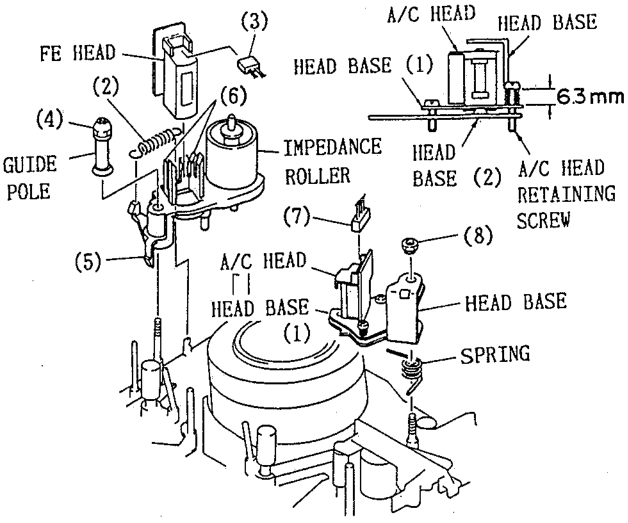


Fig. 7-1 Impedance Roller/FE (Full Erase) Head

2. Cylinder Motor Assembly (Fig. 7-2)

1) Remove the top cover. (See item 2 in the section on case removal)
2) Remove one (1) screw and earth brush.
3) Pull out the pre/rec amp circuit board. (See item 4-5 in the section on circuit board removal)

(Bottom Side)

4) Remove the bottom cover. (See item 3-1 in the section on case removal)
5) Disconnect the connector from the cylinder motor circuit board.
6) Remove three (3) screws holding the cylinder.

(Top Side)

7) Pull out the cylinder motor assembly upward.

[Cautions during work]
- * Place the side of the unit down as the screws are in the reverse positions to the direction in which the cylinder is removed.
- * Do not touch the video head tips with fingers or tools.

[Adjustments after reinstallation]
Adjustments after replacing the cylinder

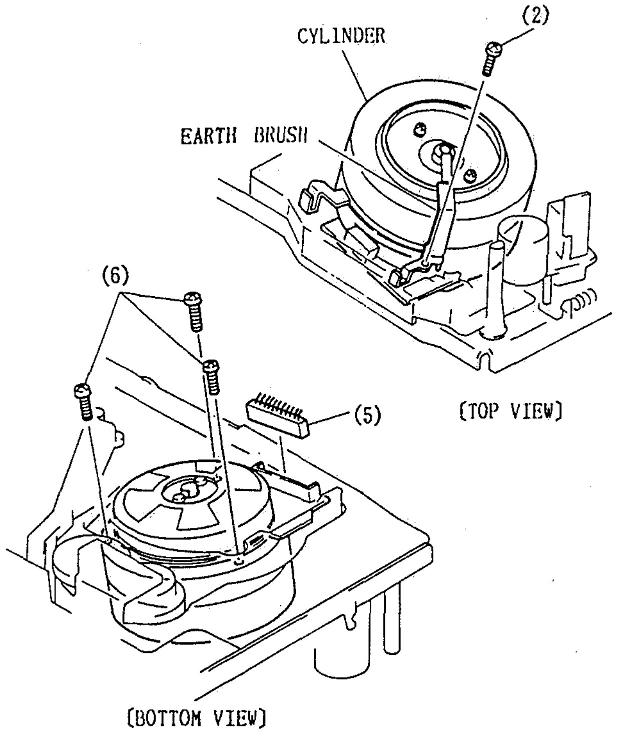


Fig. 7-2 Cylinder Motor Assembly

3. Capstan flywheel Motor (Fig. 7-3)
   1) Remove the bottom cover. (See item 3 in the section on case removal)
   2) Remove the reel belt.
   3) Disconnect the connector.
   4) Remove three (3) screws and pull out the capstan flywheel motor.
   * Keep the capstan shaft clean when removing and reinstalling teh capstan flywheel motor.

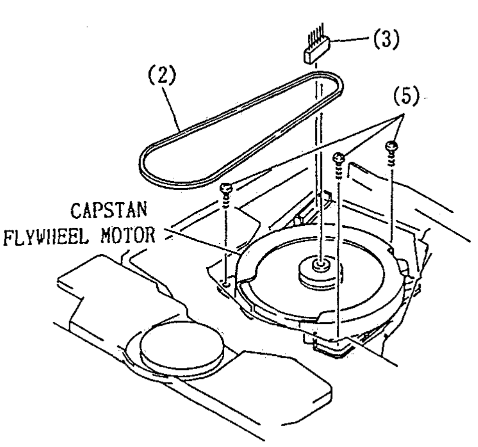


Fig. 7-3 Capstan Flywheel Motor

4. Loading Motor/Mechanism State Switch Assembly and Dew Sensor

   Loading Motor/Mechanism State Switch
   1) Remove teh top cover. (See item 2 in the section on case removal)
   2) Remove the dew sensor.
   3) Release one (1) tab and remove the cassette lid opener.
   4) Disconnect the connector.
   5) Release two (2) tabs holding the mechanism state switch.
   6) Release four (4) tabs, and while releasing two (2) bosses of the motor holder from the screw holes in the motor, lift up the loading motor/mechanism state switch assembly.

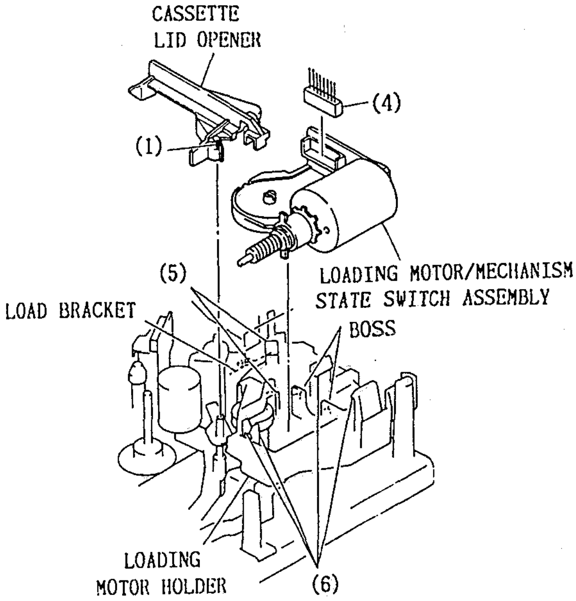


Fig. 7-4 Loading Motor/Mechanism State Switch Assembly and Dew Sensor

* Components 5 - 11 listed below will be discribed as if the top and bottom covers, front panel and the cassette loading mechanism have already been removed. (See items 2 to 4 in the section on case removal and item 5-1 in the section on cassette loading mechanism.)

5. Tension Arm/Tension Band (Fig. 7-5)
   1) Remove the spring between the tension arm and spring holder.
   2) Remove the screw holding the tension band.
   3) Release the fitting with the tension arm, move the supply subbrake in the direction of the arrow and remove the tension band and tension arm.

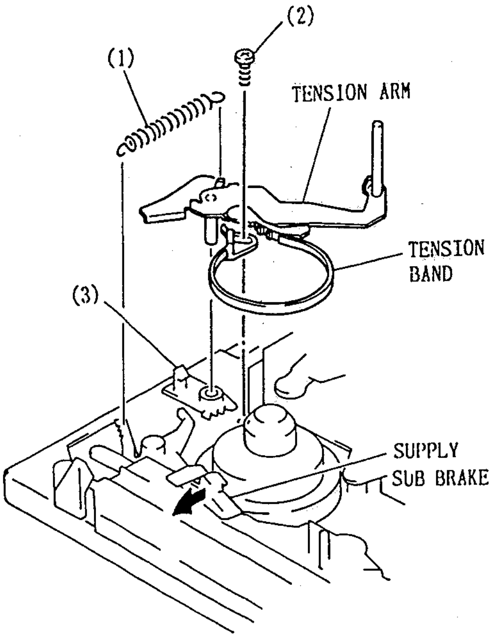

(1)
(2)
TENSION ARM
TENSION BAND
(3)
SUPPLY SUB BRAKE

Fig. 7-5 Tension Arm/Tension Band

6. Slider Block and Reel Drive Gear

Slider Block (Fig. 7-6)

1) Remove two (2) screws.

[Cautions when reinstalling]

* Reinstall the slider block while pressing both subbrakes and the supply main brake in the directions of the arrows.

* Check that the bosses of the load bracket assembly are inserted into the sliders.

Reel Drive Gear

2) Pull out the reel drive gear from the take-up gear shaft.

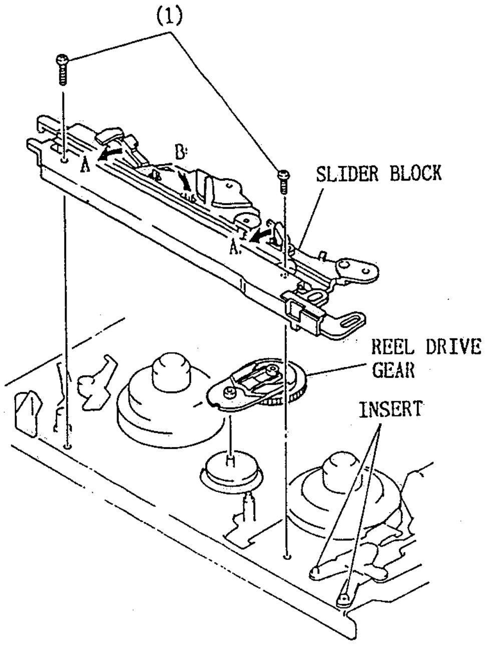

(1)
B
A
A
SLIDER BLOCK
REEL DRIVE GEAR
INSERT

Fig. 7-6 Slider Block and Reel Drive Gear

7. Supply/Take-up Reel Disks, Half Loading Arm and Relay Arm

Supply Reel Disk (Fig. 7-7)

1) Remove the slider block. (See item 6)

2) Remove the tension arm and tension band. (See item 5)

3) Pull out the supply reel disk.

[Caution when reinstalling]

* Check that a washer is put on the reel disk installation shaft.

[Adjustments after reinstallation]

Tension Pole Position and Tension Adjustments

Reel Disk Height Adjustment

Take-up Reel Disk

4) Move the take-up brake in the direction of the arrow and pull out the take-up reel disk.

[Caution when reinstalling]

* Check that a washer is put on the reel disk installation shaft.

[Adjustments after reinstallation]

Reel Disk Height Adjustment

Half Loading Arm

5) Remove the washer and pull out the arm upward.

* Hook the bottom of the spring under the half loading arm to the stopper of the take-up guide pole and the top to the stopper of the half loading arm.

Relay Arm

6) Move the stopper in the direction of the arrow and remove the relay arm.

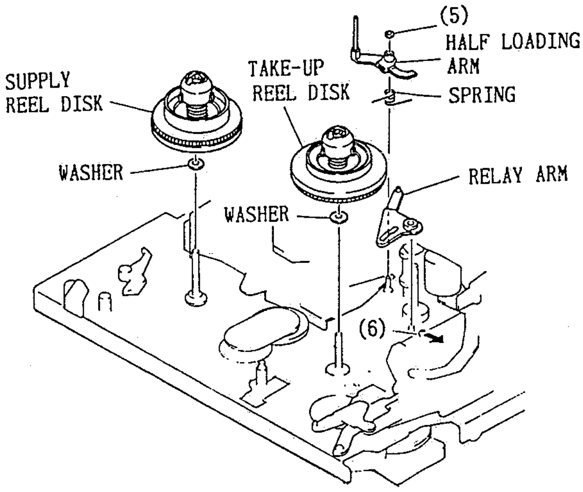

(5)
HALF LOADING ARM
SUPPLY REEL DISK
TAKE-UP REEL DISK
SPRING
WASHER
RELAY ARM
WASHER
(6)

Fig. 7-7 Supply/Take-up Reel Disks, Half Loading Arm and Relay Arm

8. Roller and Guide (Fig. 7-8)

Pressure Roller

1) Release one (1) tab and remove the cassette lid opener.
2) Pull out the pressure roller.

〔Cautions when reinstalling〕

- * Check that the pin of the pressure roller is inserted into the hole in the pressure roller operation arm.
- * Clean the tape contact surface of the pressure roller.

Supply Guide Pole

3) Loosen the guide pole retaining screw and pull out the guide pole.

〔Caution when reinstalling〕

- * Clean the tape contact surface of the guide pole.

〔Adjustment after reinstallation〕

Guide Pole Height Adjustment

Take-up Guide Pole

4) Loosen the take-up guide pole retaining screw and pull out the guide pole.

〔Caution when reinstalling〕

- * Clean the tape contact surface of the guide pole.

〔Adjustment after reinstallation〕

Guide Pole Height Adjustment

Guide Rollers

- * Remove the supply and take-up guide rollers by the same procedure.

5) Loosen the guide roller retaining hexagonal screw.
6) Turn the guide roller counterclockwise to pull it out.

〔Adjustment after reinstallation〕

Guide Roller Height Adjustment

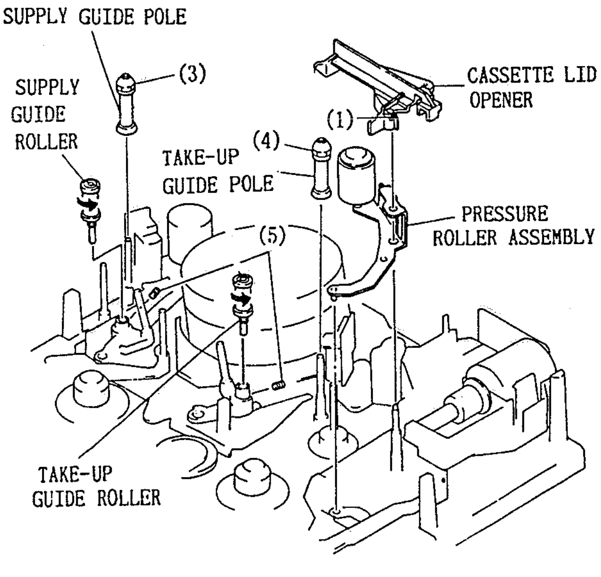


Fig. 7-8 Roller and Guide

9. Loading Motor Block, Brake Link Arm and FS Brake Arm (Fig. 7-9)

Loading Motor Block

1) Release the tab and remove the cassette lid opener.
2) Disconnect the connector from the loading motor circuit board.
3) Remove two (2) screws and release three (3) tabs.
4) Remove the loading motor and motor holder while holding the section indicated by arrow (A) so that the load bracket assembly does not lift.

〔Adjustment after reinstallation〕

Mechanism State Switch Adjustment

Brake Link Arm

5) Remove the slider block.
6) Remove the take-up reel disk. (See item 7)
7) Remove the S-VHS detection switch. (See item 7)
8) Remove the spring between the brake link arm and load bracket.
9) Release the boss of the brake lift arm and remove the brake link arm.

FS Brake Arm

10) Remove the spring between the FS brake arm and mrechanism chassis.
11) Release one (1) tab and pull out the FS brake arm.

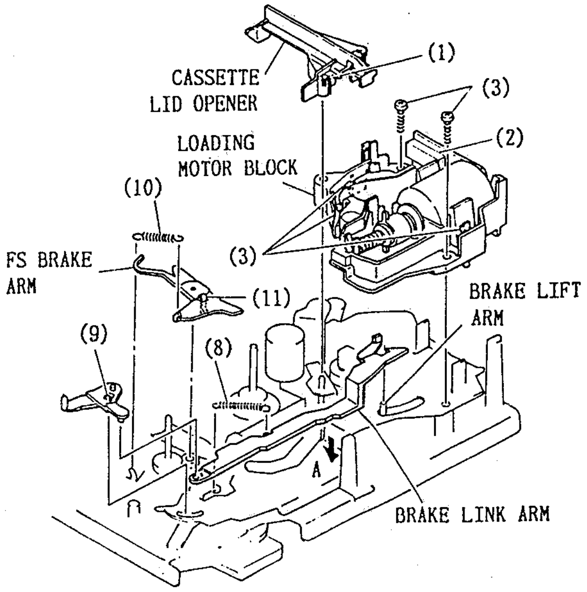


Fig. 7-9 Loading Motor Block, Brake Link Arm FS Brake Arm

10. Load Bracket Assembly and Take-up Brake Load Bracket Assembly (Fig. 7-10)

1) Remove the dew sensor. (See item 4)
2) Remove the slider block. (See item 6)
3) Remove the take-up reel disk. (See item 7)
4) Remove the S-VHS detection switch. (See item 7)
5) Remove the pressure roller. (See item 8)

6) Remove the loading motor block. (See item 9)
7) Remove the brake link arm. (See item 9)
8) Remove one (1) screw and draw the boss of the loading slide gear through the hole in the lift arm to lift up the assembly.

Take-up Brake
9) Remove the brake operation arm.
10) Release one (1) tab and remove the take-up brake.

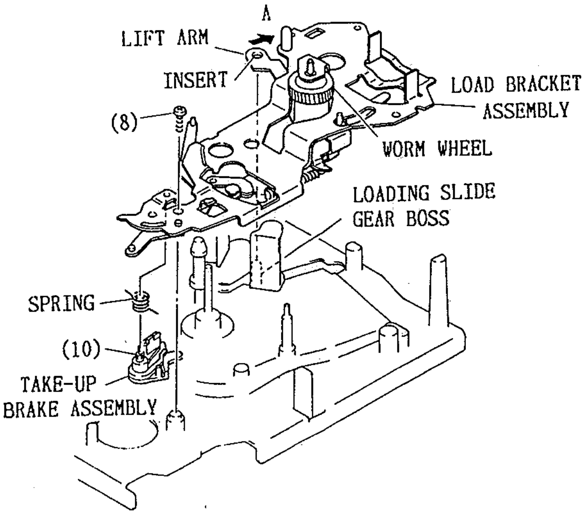

A
LIFT ARM
INSERT
LOAD BRACKET ASSEMBLY
(8)
WORM WHEEL
LOADING SLIDE GEAR BOSS
SPRING
(10)
TAKE-UP BRAKE ASSEMBLY

Fig. 7-10 Load Bracket Assembly and Take-up Brake

* Components in item 11 below will be described as if the load bracket assembly has already been removed.

11. Brake Operation Arm, Mode Gear, Worm Wheel, Pressure Roller Operation Arm, Mode Change Arm and Brake Lift Arm (Fig.7-11)

Brake Operation Arm
1) Remove the washer and pull out the brake operation arm.

Mode Gear
2) Pull out the lift arm.
3) Pull out the mode gear.

Worm Wheel
4) Pull out the worm wheel.

Pressure Roller Operation Arm, Mode Change Arm
5) Remove the spring between the pressure roller operation arm and load bracket.
6) Pull out the pressure roller operation arm.
7) Release one (1) tab and pull out the mode change arm.

Brake Lift Arm
8) Pull out the brake lift arm.

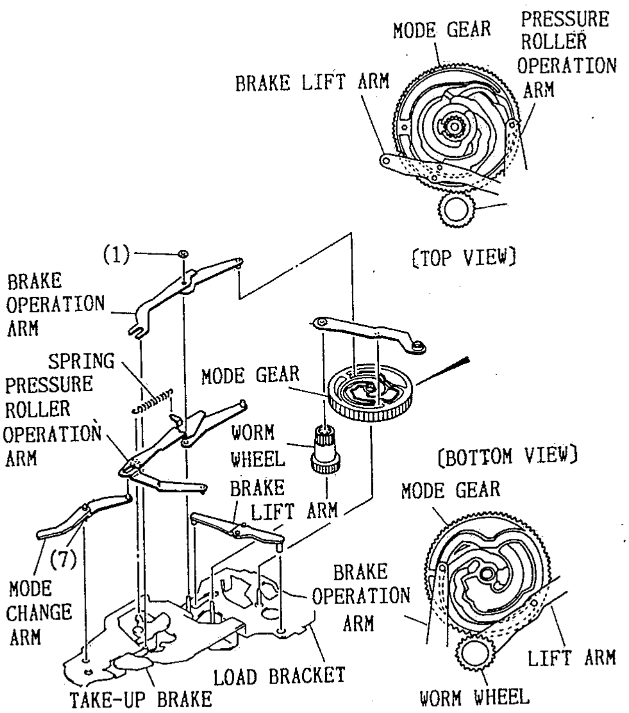

MODE GEAR
PRESSURE ROLLER OPERATION ARM
BRAKE LIFT ARM
[TOP VIEW]
(1)
BRAKE OPERATION ARM
SPRING
PRESSURE ROLLER OPERATION ARM
MODE GEAR
WORM WHEEL
BRAKE LIFT ARM
[BOTTOM VIEW]
MODE GEAR
(7)
MODE CHANGE ARM
BRAKE OPERATION ARM
LIFT ARM
LOAD BRACKET
TAKE-UP BRAKE
WORM WHEEL

Fig. 7-11 Brake Operation Arm, Mode Gear, Worm Wheel, Pressure Roller Operation Arm, Mode Change Arm and Brake Lift Arm

12. Cylinder Motor Base and Supply/Take-up Loading Arms (Fig. 7-12)

Cylinder Motor Base
1) Remove the cassette loading mechanism. (See item 5-1 in the section on cassette loading mechanism removal)
2) Remove the cylinder motor assembly. (See item 2)
3) Remove three (3) screws and take out the cylinder motor base.

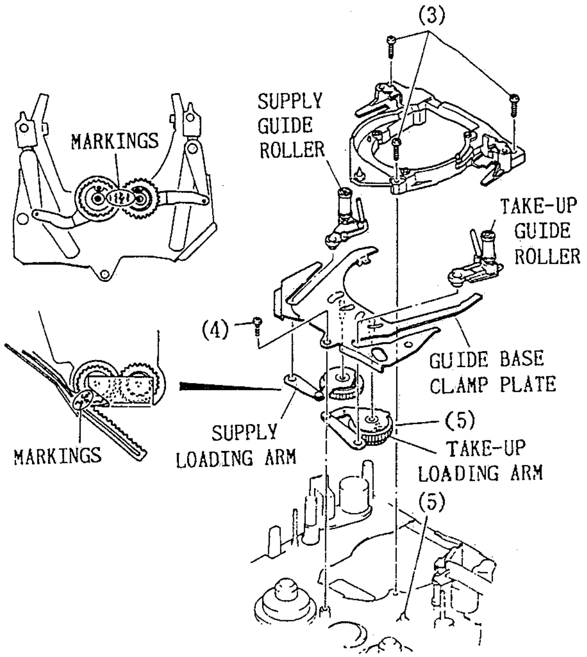

(3)
SUPPLY GUIDE ROLLER
MARKINGS
TAKE-UP GUIDE ROLLER
(4)
GUIDE BASE CLAMP PLATE
(5)
SUPPLY LOADING ARM
TAKE-UP LOADING ARM
MARKINGS
(5)

Fig. 7-12 Cylinder Motor Base and Supply/Take-up Loading Arms

Supply/Take-up Loading Arms

4) Remove one (1) screw.
5) Release one (1) tab and remove the guide base clamp plate with the supply/take-up guide rollers assembled on it.
6) Release one (1) tab and remove the take-up loading arm.
7) Remove the supply loading arm.

13. Take-up Pulley and Clutch Gear Assembly

Take-up Pulley (Fig. 7-13)

1) Release the reel belt.
2) Remove the washer and pull out the take-up pulley.

Clutch Gear Assembly

3) Remove the cassette loading mechanism. (See item 5-1 in the section on cassette loading mechanism removal)
4) Remove the slider block and reel drive gear. (See item 6)
5) Remove the reel belt in step 1) and remove three (3) screws.

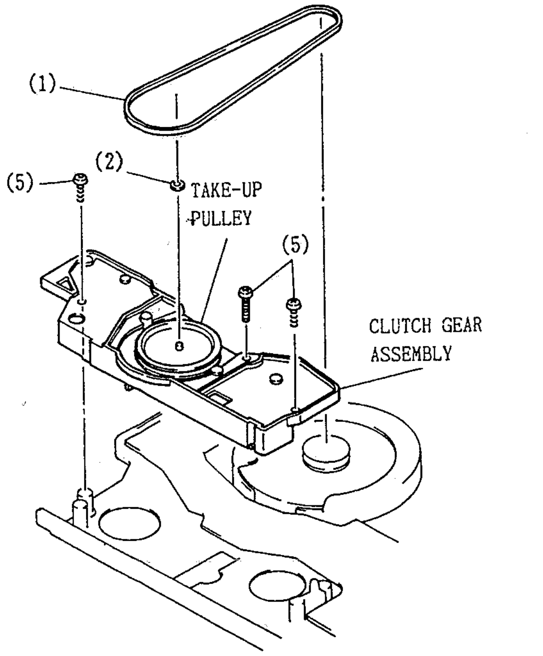


Fig. 7-13 Take-up Pulley and Clutch Gear Assembly

14. Take-up Gear, Change Arm, Change Gear, Relay Gear, FL Change Gear and FL Change Arm (Fig. 7-14)

1) Remove the cassette loading mechanism. (See item 5-1 in the section on cassette loading mechanism removal)
2) Remove the slider block and reel drive gear. (See item 6)
3) Remove the clutch gear assembly. (See item 13)

Take-up Gear

4) Remove the washer and pull out the take-up gear.

Change Arm, Change Gear

5) Remove the take-up gear.
6) Release one (1) tab and remove the spring hooked to the change arm.
7) Release two (2) tabs and remove the change arm.
8) Remove the washer and pull out the change gear.

Relay Gear

9) Release one (1) tab and pull out the relay gear.

FL Change Gear, FL Change Arm

10) Remove the cap, spring and washer and pull out the FL change gear.
11) Release two (2) tabs and remove the FL change arm.

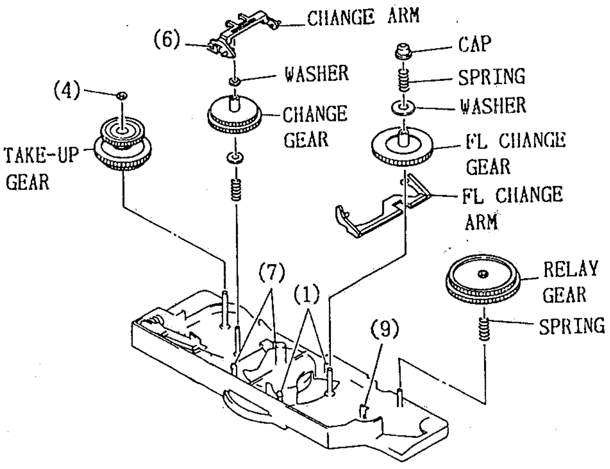


Fig. 7-14 Take-up Gear, Change Arm, Change Gear, Relay Gear, FL Change Gear and FL Change Arm

ELECTRIC CIRCUIT ADJUSTMENT

Test equipment and tapes necessary for adjustment.

1) Dual-trace oscilloscope
2) Colour bar generator
3) VTVM
4) DC voltmeter
5) Frequency counter
6) Monitor TV
7) Alignment tape
8) Hi-Fi alignment tape
9) Blank tape

Cautions on adjustments

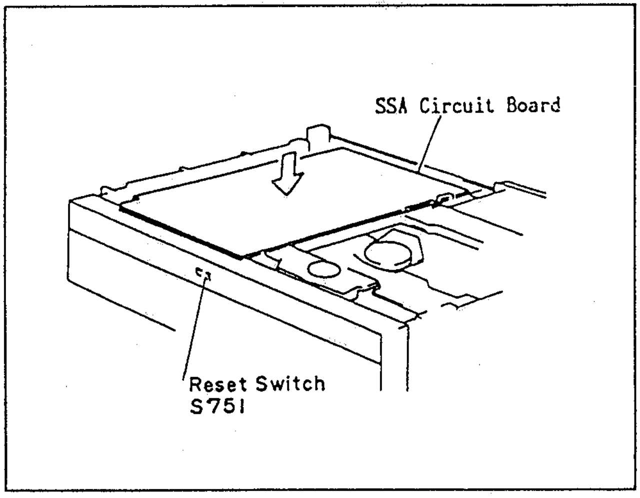
1) If there are no special instructions, the following conditions apply:
   - ○ Oscilloscope probe: 10:1
   - ○ Oscilloscope synchronization: Auto-Sync
   - ○ Tracking control: centre click.
2) When making more than one adjustment, make adjustments in the order listed.

Resetting microprocessors

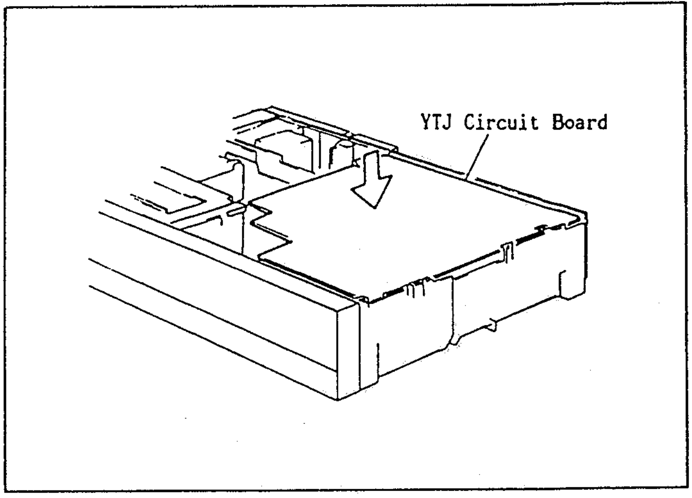
All microprocessors installed in the unit will be reset once the AC power lead is removed from the wall socket. However, the timer microprocessor is not reset for about 5 minutes because it is backed up by the backup circuit. Operate S751 on the timer circuit board to reset it.

Servicing Positions

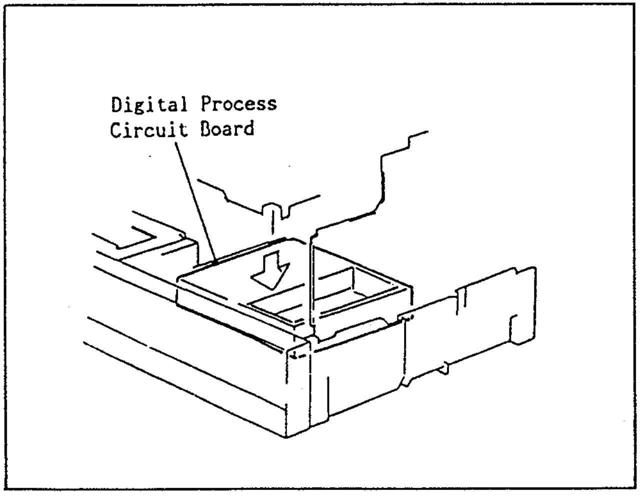
1. SSA Circuit Board

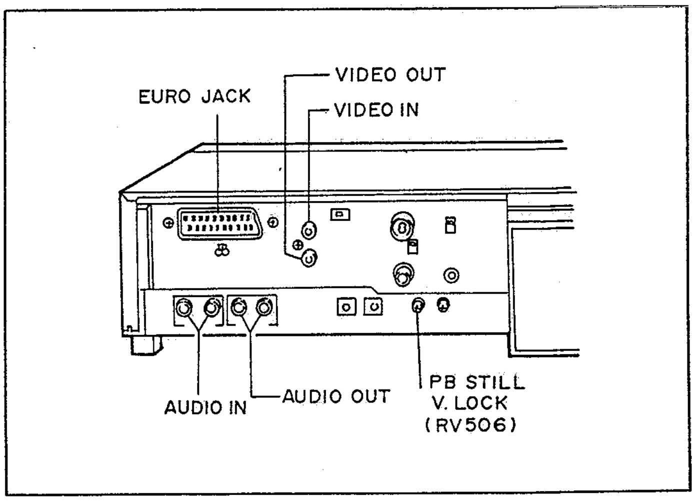

SSA Circuit Board
Reset Switch
S751

2. YTJ Circuit Board


YTJ Circuit Board

3. Digital Process Circuit Board


Digital Process
Circuit Board


VIDEO OUT
EURO JACK
VIDEO IN
AUDIO IN
AUDIO OUT
PB STILL
V. LOCK
(RV506)

COMPONENT LOCATIONS ON CIRCUIT BOARDS

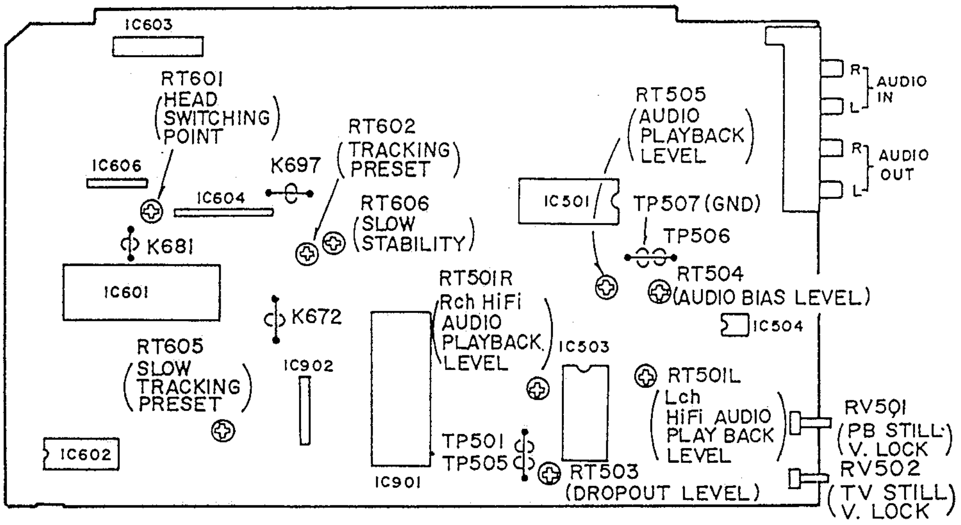

IC603
RT601 (HEAD SWITCHING POINT)
IC606
IC604
K697
RT602 (TRACKING PRESET)
RT606 (SLOW STABILITY)
K681
IC601
K672
RT605 (SLOW TRACKING PRESET)
IC902
IC602
IC901
RT501R (Rch HiFi AUDIO PLAYBACK LEVEL)
IC503
TP501
TP505
RT503 (DROPOUT LEVEL)
IC501
RT505 (AUDIO PLAYBACK LEVEL)
TP507 (GND)
TP506
RT504 (AUDIO BIAS LEVEL)
IC504
RT501L (Lch HiFi AUDIO PLAY BACK LEVEL)
R
L
AUDIO IN
R
L
AUDIO OUT
RV501 (PB STILL V. LOCK)
RV502 (TV STILL V. LOCK)

Fig. 1 Components on SSA Circuit Board
(Solder Side)

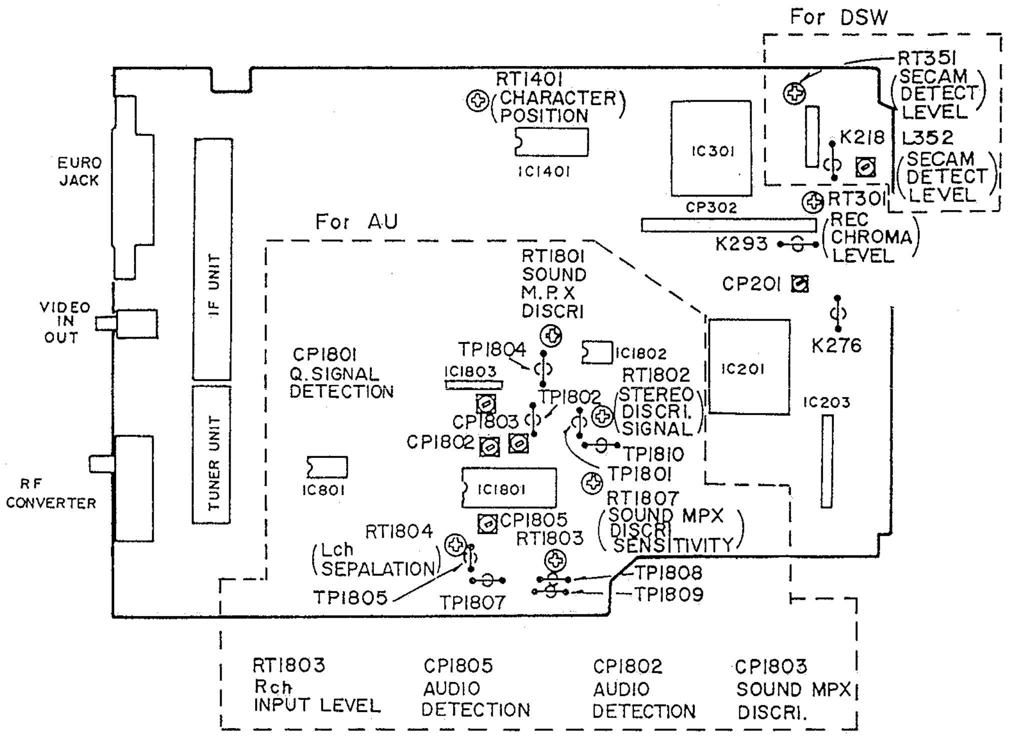

For DSW
RT351 (SECAM DETECT LEVEL)
K218
L352 (SECAM DETECT LEVEL)
RT301 (REC CHROMA LEVEL)
RT1401 (CHARACTER POSITION)
IC1401
IC301
CP302
K293
CP201
K276
IC201
IC203
EURO JACK
VIDEO IN OUT
RF CONVERTER
IF UNIT
TUNER UNIT
For AU
RT1801 SOUND M.P.X DISCRI
CP1801 Q.SIGNAL DETECTION
TP1804
IC1802
IC1803
RT1802 (STEREO DISCRI. SIGNAL)
TP1802
CP1803
CP1802
TP1810
TP1801
IC801
IC1801
RT1807 (SOUND MPX DISCRI SENSITIVITY)
CP1805
RT1803
RT1804 (Lch SEPALATION)
TP1808
TP1809
TP1805
TP1807
RT1803 Rch INPUT LEVEL
CP1805 AUDIO DETECTION
CP1802 AUDIO DETECTION
CP1803 SOUND MPX DISCRI.

Fig. 2 Components on YTJ Circuit Board
(Solder Side)

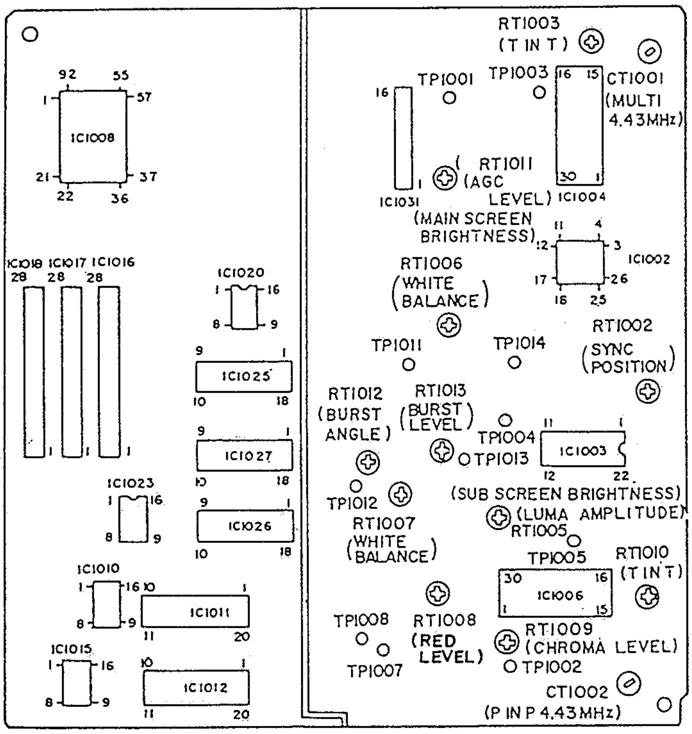

RT1003 (TINT)
CT1001 (MULTI 4.43MHz)
TP1001
TP1003
IC1008
92
55
57
1
21
37
22
36
IC1031
RT1011 (AGC LEVEL)
IC1004
(MAIN SCREEN BRIGHTNESS)
IC1002
IC1018 IC1017 IC1016
28 28 28
IC1020
RT1006 (WHITE BALANCE)
RT1002 (SYNC POSITION)
TP1011
TP1014
IC1025
IC1027
RT1012 (BURST ANGLE)
RT1013 (BURST LEVEL)
TP1004
TP1013
IC1003
IC1023
TP1012
(SUB SCREEN BRIGHTNESS)
IC1026
RT1007 (WHITE BALANCE)
(LUMA AMPLITUDE) RT1005
TP1005
RT1010 (TINT)
IC1010
IC1006
IC1011
TP1008
RT1008 (RED LEVEL)
RT1009 (CHROMA LEVEL)
IC1015
TP1002
TP1007
IC1012
CT1002 (PINP 4.43MHz)

Fig. 3 Components on Digital Process Circuit Board
(Components Side)

1. SERVO CIRCUIT ADJUSTMENTS

1. Head Switching Point Adjustment

Purpose of adjustment and fault occurring if incomplete

Purpose: Set the video head switching point to almost the centre where the CH-1 and CH-2 envelopes overlap each other during playback.

Fault: ○The vertical sync signal is degraded and vertical jitter occurs.
○Switching noise occurs in lower part of picture.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Point
• Oscilloscope (Oscilloscope Settings) •Set sync slope switch to"-" •Trigger with CH2 • Alignment tape	• CH-1: Video out • CH-2: K681 (SW25Hz)	• Play back alignment tape (Staisteps Section)	• RT601 (HEAD SWITCHING POINT)

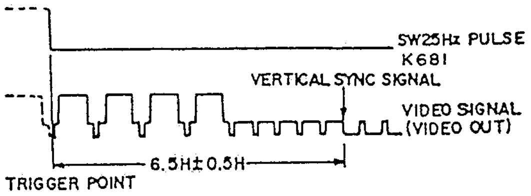
Adjustment Procedure

Vertical sync signal:
6.5H±0.5H from trailing edge(trigger point) of SW25Hz pulse.

After this adjustment is completed, check the REC TIMING pulse as follows.

1. Load a blank tape and set the VTR to the record mode.
2. Check that the REC TIMING pulse is between 5H and 8H.
3. If the REC TIMING pulse is below 5H, remove R692 1.5MΩ.

Waveforms


SW25Hz PULSE
K681
VERTICAL SYNC SIGNAL
VIDEO SIGNAL (VIDEO OUT)
6.5H±0.5H
TRIGGER POINT

2. Tracking Preset Adjustment

Purpose of adjustment and fault occurring if incomplete

Purpose: Optimize tracking when playing back a tape recorded by this unit.

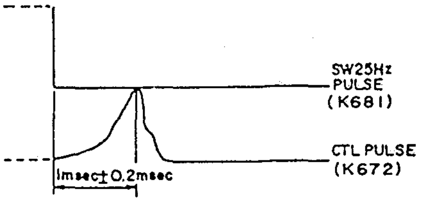
Fault: ○Noise occurs even with tracking control centred.
○Noise cannot be removed by turning the tracking control.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Point
• Oscilloscope (Settings) •Set sync slope switch to"-" •Trigger with CH1	• CH-1: K681 (SW25Hz) • CH-2: K672 (CTL PULSE)	• Record colour bar signal and play it back with this unit. • Tracking control: Centre click position	• RT602 (TRACKING PRESET)
• Colour bar generator (or receive TV programme)	• Video in		
• Blank tape			

Adjustment Procedure

1) Tracking control: Centred
2) It is 1 msec ± 0.2 msec from the fall of SW25Hz to the peak of CTL pulse.

Waveforms



3. Slow Tracking Preset Adjustment

Purpose of adjustment and fault occurring if incomplete

Purpose: Optimize tracking during slow play.

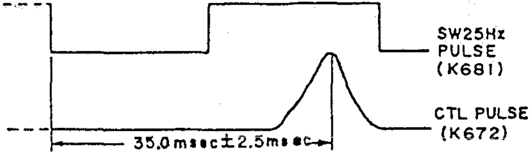
Fault: A noise bar appears in the picture during slow play.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Point
• Oscilloscope (Settings) Set sync slope switch to"-" •Trigger with CH1	• CH-1: K681(SW25Hz) • CH-2: K672(CTL PULSE)	• Record colour bar signal and play it back with this unit in slow mode. • Turn on RESET switch S751 (on the timer circuit board) to set the slow tracking to the centre electrically.	• RT605 (SLOW TRACKING PRESET)
• Colour bar generator (or receive TV programme)	• Video in		
• Blank tape			

Adjustment Procedure

It is 35.0msec±2.5msec from the fall of SW25 to the peak of CTL pulse.

Waveforms



4. Slow Stability Adjustment

Purpose of adjustment and fault occurring if incomplete

Purpose: Suppress horizontal jitter in the picture during slow play.

Fault: Horizontal jitter occurs in the picture during slow play.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Point
• Monitor TV • Colour bar generator (or receive TV programme)	• RF out • Video in	• Record colour bar signal and play it back with this unit in slow mode. • Turn on RESET switch S751 (on the timer circuit board) to set the slow tracking to the centre electrically.	• RT606 (SLOW STABILITY)
• Blank tape			

Adjustment Procedure

Minimize horizontal jitter in the picture.

5. Vert. Sync. Adjustment

Purpose of adjustment and fault occurring if incomplete

Purpose: Change timing for adding vertical drive pulse and suppress vertical jitter in picture during trick play.

Fault: Vertical jitter during trick play.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Point
• Monitor TV	• RF out	• Record colour bar signal and play it back with this unit in STILL mode.	• RV501 (PB STILL V.LOCK)
• Colour bar generator (or receive TV programme)	• Video in		
• Blank tape			

Adjustment Procedure

Suppress vertical jitter in picture.

2. Y/CHROMA CIRCUIT ADJUSTMENTS

1. Rec Chroma Level Adjustment

Purpose of adjustment and fault occurring if incomplete

Purpose: Set the chroma record level to an optimum value.

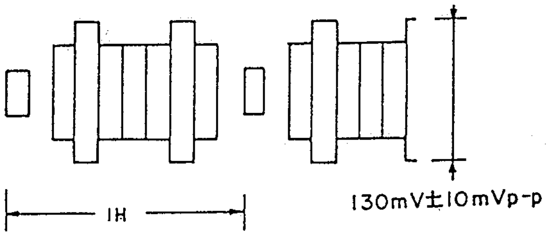
Fault: Diamond beats occur in the played back picture or colouring becomes poor.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Point
• Colour bar generator	• Video in	• E-E mode	• RT301 (REC CHROMA LEVEL)
• Oscilloscope	• K293		

Adjustment Procedure

The oscilloscope reads 130mV±10mVp-p.

Waveforms


1H
130mV±10mVp-p

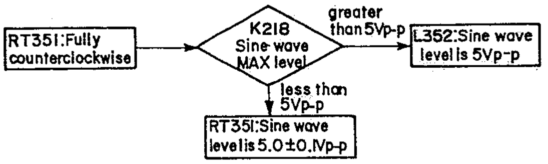
2. Secam Detect Level Adjustment (For DSW)

Purpose of adjustment and fault occurring if incomplete

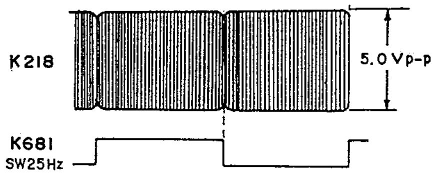
Purpose: Set the Secam detect level to the specified value.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Points
• SECAM colour bar generator	• Video in	• REC mode	• RT351 • L352 (SECAM DETECT LEVEL)
Blank tape			
• Oscilloscope	• CH-1: K218 • CH-2: K681 (SW25Hz)		

Adjustment Procedure


RT351:Fully counterclockwise
K218 Sine wave MAX level
greater than 5Vp-p
L352:Sine wave level is 5Vp-p
less than 5Vp-p
RT351:Sine wave level is 5.0±0.1Vp-p

Waveforms


K218
5.0 Vp-p
K681
SW25Hz

3. AUDIO CIRCUIT ADJUSTMENTS

1. Hi-Fi Audio Playback Level Adjustment

Purpose of adjustment and fault occurring if incomplete

Purpose: To set the audio playback level to the specified value.

Fault: The proper sound volume cannot be obtained.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Points
• VTVM • Hi-Fi alignment tape	• AUDIO OUT L jack when adjusting RT501L • AUDIO OUT R jack when adjusting RT501R	• Play back Hi-Fi alignment tape	• RT501L(L-CH) • RT501R(R-CH) (Hi-Fi AUDIO PLAYBACK LEVEL)

Adjustment Procedure

(Same for RT501L and RT501R)

The VTVM reads -4.8±0.1dBs.

[Caution]

1) When connecting the pin plugs for measurement, connect them to both the left and right channels.
2) Perform the dropout level adjustment after this adjustment is completed.

2. Dropout Level Adjustment

Purpose of adjustment and fault occurring if incomplete

Purpose: To set the dropout detection level and muting level of FM audio signal.

Fault: ○Noise occurs even with a minute dropout of envelope.

○Hi-Fi audio is not switched to linear audio when an envelope is missed.

Test Equipment/Jigs	Test Equipment Connection Point	VTR State	Adjustment Point
• DC Voltmeter • Alignment tape	• TP501	• Playback alignment tape	• RT503 (DROPOUT LEVEL)

Adjustment Procedure

1) Short-circuit TP505 and ground.
2) The DC voltmeter reads 2.5±0.1V DC.
3) Release the short-circuit.

3. Audio Playback Level Adjustment

Purpose of adjustment and fault occurring if incomplete

Purpose: To set the audio playback level to the specified value.

Fault: The proper sound volume cannot be obtained.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Point
• VTVM • Alignment tape	• AUDIO OUT L jack (US Pin jack)	• Playback alignment tape	• RT505 (AUDIO PLAYBACK LEVEL)

Adjustment Procedure

The VTVM reads -7.8±0.5dBs.

4. Audio Bias Level Adjustment

Purpose of adjustment and fault occurring if incomplete

Purpose: To set audio bias during recording to optimum level.

Fault: ○Bias too high: High-frequency response deteriorates.
○Bias too low: Sound tends to be distorted.

Test Equipment/Jig	Test Equipment Connection Points	VTR State	Adjustment Point
· VTVM	· TP506(BIAS) · TP507(BIAS GND)	· Non-signal recording	· RT504 (AUDIO BIAS LEVEL)

Adjustment Procedure

The VTVM reads 2.5±0.1mV.

4. MULTIPLEX DEMODULATOR CIRCUIT ADJUSTMENTS 〔For AU〕

Note: 1. Set all the semi-variable resitors on the demodulator board to around the centre of their variable ranges.
2. Set the audio channel select switch to "CH1+CH2".

1. Sound M.P.X.Discri Sensitivity Adjustment

Purpose of adjustment and fault occurring if incomplete

Purpose: Set the sound multiplex discrimination sensitivity to the specified value.

Fault: The sound multiplex discrimination sensitivity decreases and a malfunction occurs.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Point
· CR oscillator	· TP1801	· Stop mode (Disconnect the aerial cable from the VTR and detune the tuner.)	· RT1807 (SOUND M.P.X.DISCRI. SENSITIVITY)
· DC voltmeter · Frequency counter	· IC1801 pin 10 · TP1810		

Adjustment Procedure

1) Apply a signal of 196Hz, 40mV to TP1801.
2) The DC voltmeter reads 6.10V±0.05V.

2. Audio Detection Adjustment

Purpose of adjustment and fault occurring if incomplete

Purpose: Optimize the audio detection level.

Fault: The audio level is low and sound is distorted.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Points
· Oscilloscope · Distortion meter	· TP1802 · TP1805	· Receive a bilingual broadcast	· CP1802 (AUDIO DETECTION) · CP1805 (AUDIO DETECTION)

Adjustment Procedure

Adjust CP1802 and CP1805 to maximize the output and fine adjust so the distortion is minimum.

3. Q.Signal Detection Adjustment

Purpose of adjustment and fault occurring if incomplete

Purpose: Set the Q.signal carrier level to the specified value.

Fault: The detection sensitivity becomes low.

Test Equipment/Jig	Test Equipment Connection Point	VTR State	Adjustment Point
• Oscilloscope	• TP1804	• Receive a bilingual broadcast	• CP1801 (Q.SIGNAL DET.)

Adjustment Procedure

AC Level: Maximize

4. Sound M.P.X.Discri Signal Adjustment

Purpose of adjustment and fault occurring if incomplete

Purpose: Set the sound multiplex Q. discrimination signal 274.1Hz to the specified value.

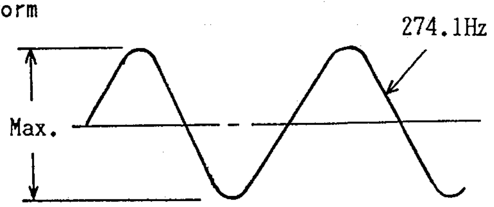
Fault: The sound multiplex sensitivity is defective or a malfunction occurs.

Test Equipment/Jig	Test Equipment Connection Point	VTR State	Adjustment Points
• Oscilloscope	• TP1801	• Receive a bilingual broadcast	• RT1801 (SOUND M.P.X. DISCRI) • CP1803 (SOUND M.P.X. DISCRI)

Adjustment Procedure

Adjust RT1801 and CP1803 to maximize the sound multiplex discrimination signal(274.1Hz)output.

Waveform



5. Stereo Discri Signal Adjustment

Purpose of adjustment and fault occurring if incomplete

Purpose: Set the stereo discrimination sensitivity to the specified value.

Fault: The stereo discrimination sensitivity becomes defective and a malfunction occurs.

Test Equipment/Jig	Test Equipment Connection Point	VTR State	Adjustment Point
• Oscilloscope	• TP1801	• Receive a stereo broadcast	• RT1802 (STEREO DISCRI. SIGNAL)

Adjustment Procedure

Adjust RT1802 to maximize the stereo discrimination signal (117.5Hz) output.

6. Stereo Signal Output Level Adjustment

Purpose of adjustment and fault occurring if incomplete

Purpose: Set the Rch signal to the specified value during stereo reception.

Fault: A level difference occurs between L and R channels.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Point
• Stereo signal generator	• Audio input	• Receive stereo signals (400Hz/30kHz)	• RT1803 (STEREO SIGNAL OUTPUT LEVEL)
• VTVM • Oscilloscope	• TP1808		

Adjustment Procedure

1) Set the CH1+CH2 select switch on the operation switch circuit board to "CH2" so only the Lch signal is output.
2) Adjust RT1803 so the output level is -9dBm± 0.5dBm($276 ^{+25}_{-22}$ mV).

7. Lch Separation Adjustment

Purpose of adjustment and fault occurring if incomplete

Purpose: Optimize the separation of stereo sound.

Fault: The separation of stereo sound becomes defective. (Leak of signal components from R to L channel)

Test Equipment/Jig	Test Equipment Connection Point	VTR State	Adjustment Point
• Oscilloscope	• TP1807	• Receive a stereo broadcast	• RT1804 (LCH SEPARATION)

Adjustment Procedure

1) Switch off the modulation of L-channel.
2) Adjust RT1804 to minimize the Rch signal output.

5. CHARACTER GENERATOR CIRCUIT ADJUSTMENT

1. Character Position Adjustment

Purpose of adjustment and fault occurring if incomplete

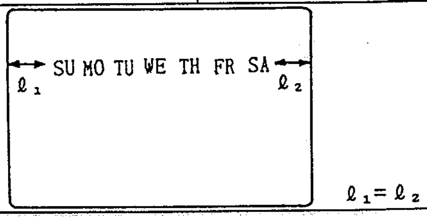
Purpose: To set the positions of characters displayed on the screen.

Fault: The character display position is drifted.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Point
• Colour bar generator	• VIDEO IN jack	• Receive colour bar signal (LINE IN) • OSD mode	• RT1401 (CHARACTER POSITION)
• Monitor TV	• Check with monitor TV		

Adjustment Procedure

1) Operate the remote control to display the OSD menu and select the calendar.
2) RT1401: Equalize interval ℓ1 from the screen edge to S of SU (Sunday) and ℓ2 from the edge to A of SA (Saturday).



6. DIGITAL PROCESS ADJUSTMENTS

1. AGC Level Adjustment

Purpose of adjustment and fault occurring if incomplete

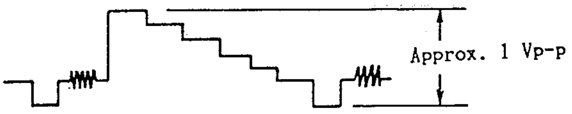
Purpose: Match the brightnesses of the main and sub screens in the P in P mode.

Fault: The brightnesses of the main and sub pictures are different.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Point
• Colour bar generator • Oscilloscope	• Video input • TP1001	• P in P mode (in EE mode)	• RT1011 (AGC LEVEL)

Adjustment Procedure

Set the amplitude to approx. 1 Vp-p.



2. Sync Signal Position Adjustment

Purpose of adjustment and fault occurring if incomplete

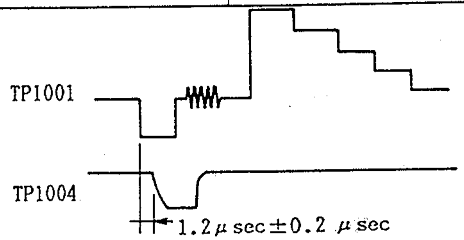
Purpose: Set the reference position for writing to the memory. / Set the reference position of the BGP (burst gate pulse).

Fault: The centre of the sub picture is drifted in the V.MEMO and P in P modes. / Colouring is unstable.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Point
• Colour bar generator	• Video input	• P in P mode (in EE mode)	• RT1002 (SYNC POSITION)
• Oscilloscope	• CH1: TP1001 • CH2: TP1004		

Adjustment Procedure

Set the sync signal to the position 1.2 μsec ±0.2 μsec.



3. 4.43MHz Adjustment

Purpose of adjustment and fault occurring if incomplete

Purpose: Set the 4.43MHz free-running frequency.

Fault: Colouring is unstable or the picture has no colour in the multi-picture and P in P modes.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Point
• Colour bar generator	• Video input		
• Frequency counter	• TP1003(MULTI)	• Multi-picture (in EE mode)	• CT1001 (MULTI 4.43MHz)
	• TP1005(P IN P)	• P in P mode(in EE mode)	• CT1002 (P IN P 4.43MHz)

Adjustment Procedure

CT1001: The frequency counter reads 4433.62± 0.05 kHz in the multi-picture mode. (TP1003)

CT1002: The frequency counter reads 4433.62± 0.05 kHz in the P in P mode.(TP1005)

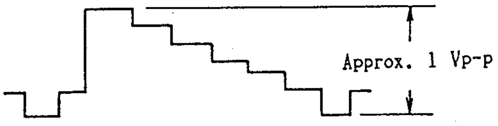
Note: Connect TP1002 to earth when adjusting CT1002(TP1005).

4. Luminance Signal Amplitude Adjustment

Purpose of adjustment and fault occurring if incomplete
Purpose: Set the brightness of the sub screen in the P in P mode.
Fault: The brightnesses of the main and sub screens are different in the P in P mode.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Point
· Colour bar generator	· Video input	· P in P mode(in EE mode)	· RT1005 (LUMA AMPLITUDE)
· Oscilloscope	· TP1008		

Adjustment Procedure
Set the amplitude to approx. 1.0 Vp-p.

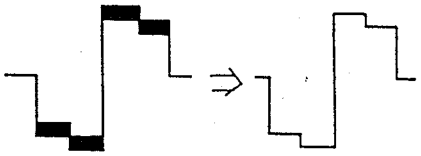


5. Tint Adjustment

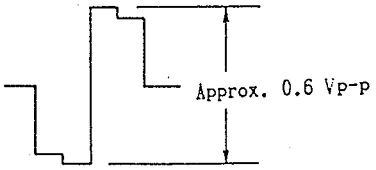
Purpose of adjustment and fault occurring if incomplete
Purpose: Adjust the phase angle when a chroma signal is demodulated.
Fault: Flickering will occur in the sub screen in the P in P mode.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Points
· Colour bar generator	· Video input	· P in P mode(in EE mode)	· RT1010 (TINT) · RT1009 (CHROMA LEVEL)
· Oscilloscope	· TP1007		

Adjustment Procedure
RT1010: Adjust so the amplitude is not doubled.



RT1009: Set the amplitude to approx. 0.6 Vp-p.

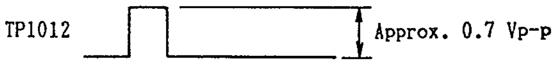


6. Burst Level Adjustment

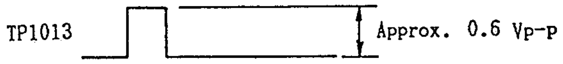
Purpose of adjustment and fault occurring if incomplete
Purpose: Set the tint in the V. MEMO mode.
Fault: The tints do not match in the V. MEMO mode.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Point
· Colour bar generator	· Video input	· P in P mode(in EE mode)	· RT1012 (BURST ANGLE) · RT1013 (BURST LEVEL)
· Oscilloscope	· TP1012 · TP1013		

Adjustment Procedure
RT1012: Set the amplitude to approx. 0.7 Vp-p.



RT1013: Set the amplitude to approx. 0.6 Vp-p.



7. White Balance Adjustment

Purpose of adjustment and fault occurring if incomplete

Purpose: Set the tints of the main and sub screens correctly in the P in P mode.

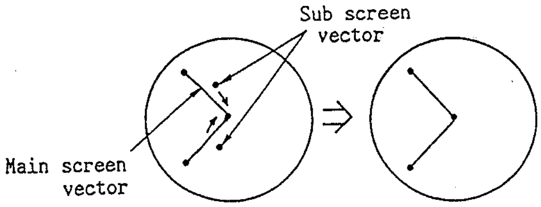
Fault: The tint of the sub screen is abnormal in the P in P mode.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Point
· Colour bar generator	· Video input		· RT1006 (WHITE BALANCE) · RT1007 (WHITE BALANCE)
· Vectorscope(Method 1)	· Video output	· P in P mode(in EE mode)	
· Oscilloscope(Method 2)	· CH1:TP1011 · CH2:TP1014	· V. MEMO mode	

Adjustment Procedure

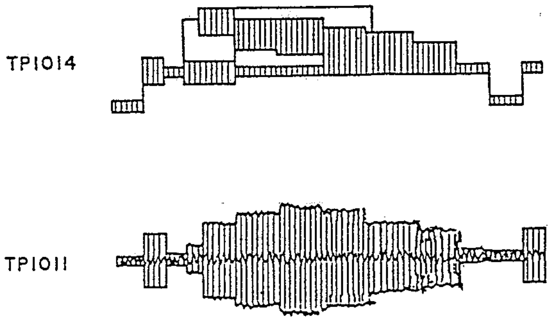
Method 1: When Using Vectorscope

RT1006/RT1007: Match the centres of the main and sub screen vectors.



Method 2: When Using Oscilloscope

TP1011: The amplitude of the chroma signal is minimum and the waveform is as on the right.



8. Main Screen Brightness Adjustment

Purpose of adjustment and fault occurring if incomplete

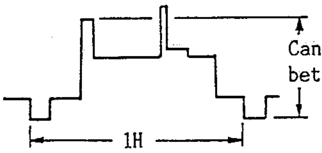
Purpose: Match the brightnesses of the main screen in the P in P and P in P REV. modes.

Fault: The brightness of the main screen changes in the P in P and P in P REV. modes.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Point
· Colour bar generator · Oscilloscope	· Video input · TP1014	· P in P mode(in EE mode) · REV. P in P mode (in EE mode)	· RT1011 (MAIN SCREEN BRIGHTNESS)

Adjustment Procedure

Match the main screen level in the P in P REV mode with that in the P in P mode (any level of the sub screen)



Cancel the difference between the P in P and P in P REV modes.

9. Sub Screen Brightness Adjustment

Purpose of adjustment and fault occurring if incomplete

Purpose: To adjust the brightness of the sub screen.

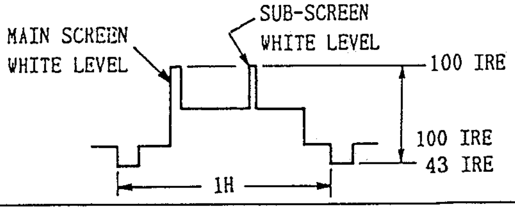
Fault: The brightnesses of the main and sub screens are different.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Point
• Colour bar generator	• Video input	• P in P mode(in EE mode)	• RT1012 (SUB SCREEN BRIGHTNESS)
• Oscilloscope	• TP1014		

Adjustment Procedure

Match the luminance levels of the main and sub screens.

White level: 100±5 IRE


MAIN SCREEN WHITE LEVEL
SUB-SCREEN WHITE LEVEL
100 IRE
100 IRE
43 IRE
1H

10. Main/Sub Screen Tint Matching Adjustment (1) 〔When using Vectorscope〕

Purpose of adjustment and fault occurring if incomplete

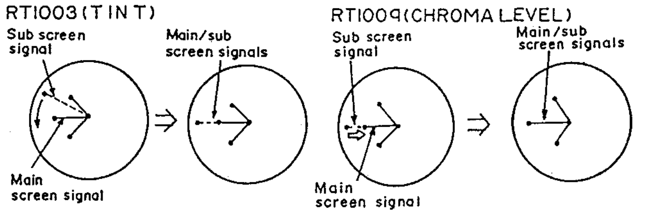
Purpose: Match the tints of the main and sub screens in the P in P mode.

Fault: The tints of the main and sub screens do not match.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Points
• Colour bar generator	• Video input	• P in P mode(in EE mode)	• RT1003 (TINT) • RT1009. (CHROMA LEVEL)
• Vectorscope	• Video output		

Adjustment Procedure

RT1003/RT1009: Match the bright points of the main screen vector with those of the sub screen (as in the figure on the right).


RT1003(TINT)
Sub screen signal
Main/sub screen signals
Main screen signal
RT1009(CHROMA LEVEL)
Sub screen signal
Main/sub screen signals
Main screen signal

11. Main/Sub Screen Tint Matching Adjustment (2) 〔When using Vectorscope〕

Purpose of adjustment and fault occurring if incomplete

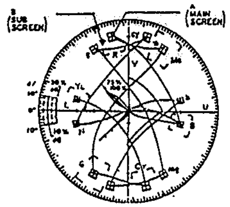
Purpose: Adjust the red tint.

Fault: The tint of the main and sub screens do not match.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Point
• Colour bar generator	• Video input	• P in P mode(in EE mode)	• RT1008 (RED LEVEL)
• Vectorscope	• Video output		

Adjustment Procedure

Match the bright point of sub screen with that of main screen (only in the vertical direction).


B (SUB SCREEN)
A (MAIN SCREEN)
R
YL
L
U
V
G
CY
MG
B
75%
100%

10.11. Main/Sub Screen Tint Matching Adjustment (1)(2) 〔When using Monitor TV〕

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Points
• Colour bar generator	• Video input	• P in P mode(in EE mode)	• RT1003 (TINT) • RT1008 (TINT) • RT1009 (CHROMA LEVEL)
• Monitor TV	• Check with Monitor TV		

Adjustment Procedure

Adjust so that the tints of the main and sub screens are the same.

12. Burst Signal Adjustment

Purpose of adjustment and fault occurring if incomplete

Purpose: Set the angle and amplitude level of the burst signal.

Fault: The tint and colour saturations of the pictures are different in the EE and V. MEMO modes.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Points
• Colour bar generator	• Video input	• V.MEMO mode	• RT1012 (BURST ANGLE)
• Vectorscope〔Method 1〕	• Video output	• V.MEMO mode〔in EE mode〕	• RT1013 (BURST ANGLE)
• Monitor TV〔Method 2〕	• Check with Monito TV	• EE mode V.MEMO mode	

Adjustment Procedure

Method 1: When using Vectorscope

1) Perform amplitude adjustment using the vetroscope to match the bright point of the vector to the specified level.
2) RT1012: Set the angle of the burst signal to 90° .
3) RT1013: Set the burst level to 75%.

Method 2: Whe using Monitor TV

〔Complete item 6 Burst Level Adjustment before performing this adjustment〕

1) Alternate the EE mode and V.MEMO mode repeatedly and match the tint in the V.MEMO mode with that in the EE mode.

7. TIMER CIRCUIT ADJUSTMENT

1. 4.19MHz Crystal Adjustment

Purpose of adjustment and fault occurring if incomplete

Purpose: Suppress time gain or lag of the timer to less than 0.2 seconds per day.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Points
• Frequency counter	• IC701 PIN28 • IC701 PIN29(GND)	• Stop mode	• C716 (4.19 MHz CRYSTAL)

Adjustment Procedure

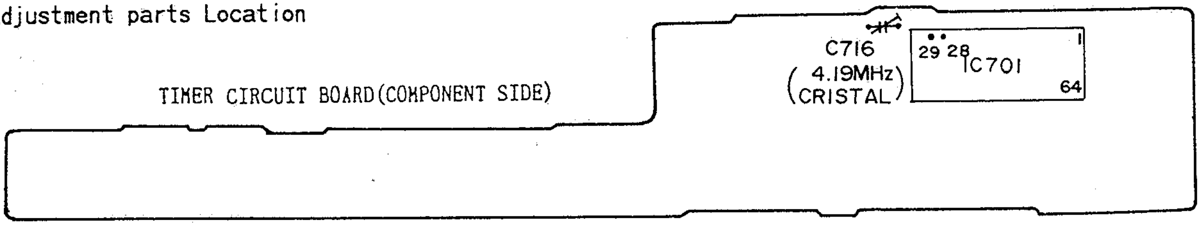
1) Set the counter gate time to 10 seconds.
2) When performing measurement with the probe attached to the oscillation circuit, a delay of 2.35 seconds per day occurs. (It is not possible to adjust directly.)
3) Perform measurement using a frequency counter with 6 or more effective digits, taking the drift of probe into account.
4) Set the adjustment frequency to f=4.194190.

①Frequency counter with 7 effective digits
f=4.194190
Error range: F=4.194189-4.194191
Difference per day:±0.021 seconds

②Frequency counter with 7 effective digits
f=4.194190
Error range: F=4.19418-4.19420
Difference per day:+0.207-0.206 seconds

Note: Set the probe to 10:1(18pF~22pF)for use.

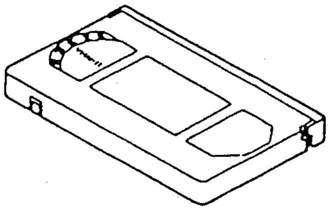
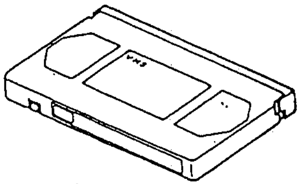
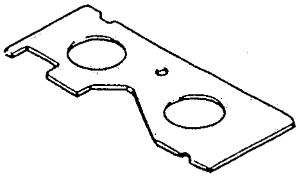
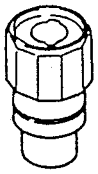
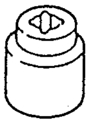
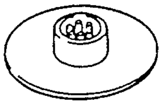
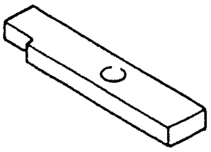
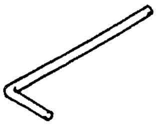
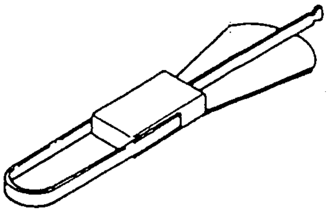
Adjustment parts Location



CHAPTER 4

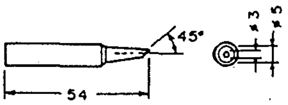
MECHANISM ADJUSTMENT

JIGS AND TAPES FOR ADJUSTMENT

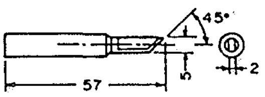
1. Back Tension Meter Parts No.7099004 	2. Alignment Tape Parts No. 7099052  Hi-Fi Alignment Tape Parts No.7099175	3. Master Plane Parts No.7099279 
4. Torque Gauge Parts No.7099039 	5. Torque Gauge Adaptor Parts No.7099035 	6. Dummy Reel Parts No.7099043 
7. Reel Disk Height Jig Parts No.7099038 	8. 1.5mm Hexagonal Wrench 	9. Fan-type Tension Gauge 

SOLDERING IRON TIPS FOR REPAIRING

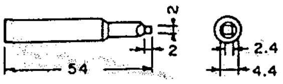
1. Round Tip P No.7099122
(for Soldering)



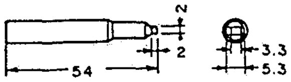
2. Flat Tip P No.7099123
(for Soldering)



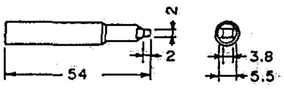
3. 2×2 CR Tip P No.7099124
(for Unsoldering)



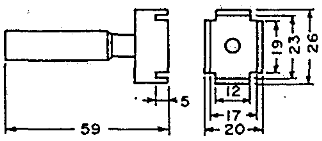
4. 3×2 CR Tip P No.7099125
(for Unsoldering)



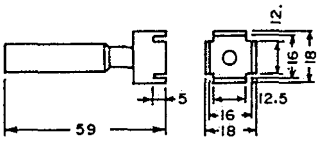
5. 4×2 CR Tip P No.7099126
(for Unsoldering)



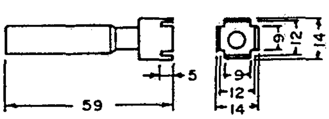
6. 23×17 Box Tip P No.7099127
(for Unsoldering)



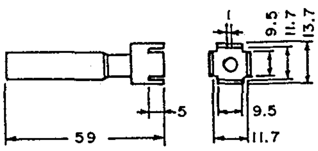
7. 16×16 Box Tip P No.7099128
(for Unsoldering)



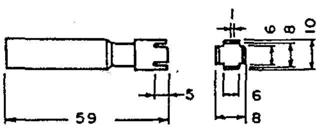
8. 12×12 Box Tip P No.7099129
(for Unsoldering)



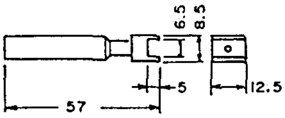
9. 12×11 Box Tip P No.7099130
(for Unsoldering)



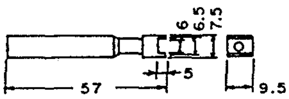
10. 8×8 Box Tip P No.7099131
(for Unsoldering)



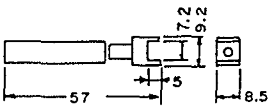
11. 7×13 Channel Tip P No.7099132
(for Unsoldering)



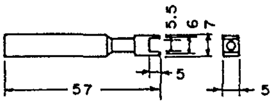
12. 6×10 Channel Tip P No.7099133
(for Unsoldering)



13. 7×9 Channel Tip P No.7099134
(for Unsoldering)



14. 5×5 Channel Tip P No.7099135
(for Unsoldering)



MECHANICAL PARTS ADJUSTMENT

1.Mechanism State Switch

Purpose: To detect the mechanism state correctly and prevent malfunctions.

Test equipment/jigs	Preparation for adjustment	State of VTR	Adjustment points
• Blank tape	—	• Eject mode (with the cassette ejected)	• Mechanism state switch • Mode gear

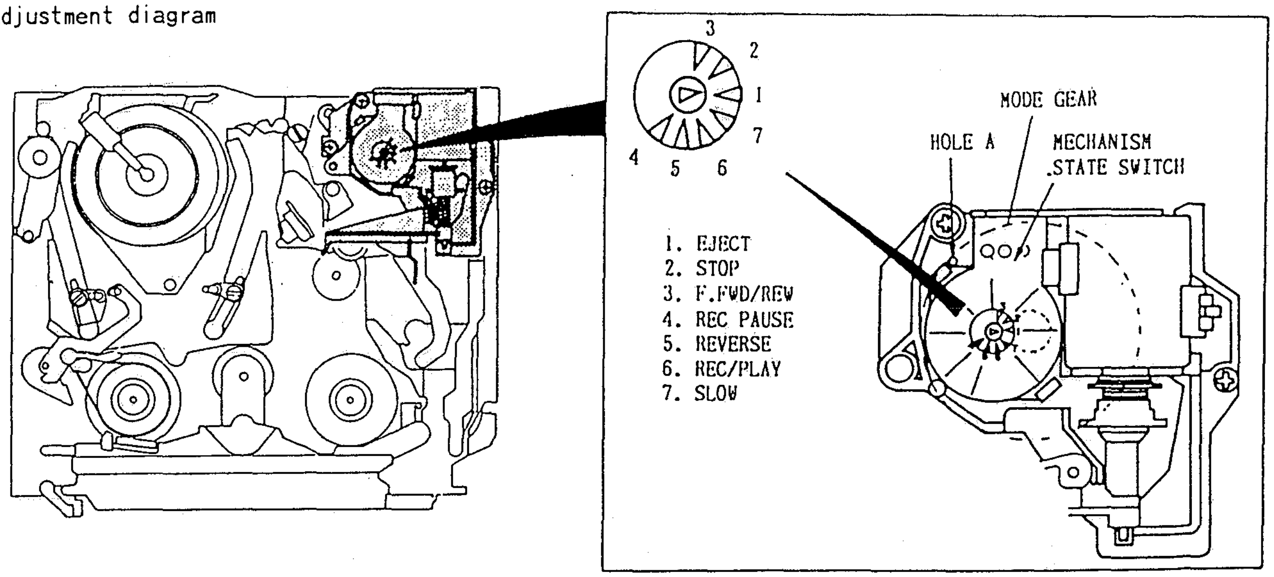
Adjustment procedure

1) Check that the arrow on the centre shaft of the mechanism state switch points to the arrow of mechanism mode indication number 1. Also check that hole (A) beside the mechanism state switch and the hole in the mode gear are aligned.

2) If the above alignments are not obtained, adjust as follows.
   1. Remove the mechanism state switch/loading motor assembly.
      (See "MAIN MECHANICAL COMPONENTS REMOVAL" in CHAPTER 2.)
   2. Move the mode gear to align the position of hole (A).
   3. Turn the gear on the back of the mechanism state switch so that the arrow on the centre shaft of the switch points to the arrow of mechanism mode indication number 1.
   4. Reinstall the mechanism state switch/loading motor assembly in the above condition.

3) Load a blank tape and perform various operations to check that loading and unloading are performed correctly.

Adjustment diagram


3
2
1
7
4
5
6
1. EJECT
2. STOP
3. F.FWD/REW
4. REC PAUSE
5. REVERSE
6. REC/PLAY
7. SLOW
MODE GEAR
HOLE A
MECHANISM
.STATE SWITCH

TAPE TRANSPORT SYSTEM PARTS ADJUSTMENT

The tape transport system is the path from the supply reel disk passing through the video heads to the take-up reel disk. The transport system parts, especially the parts which directly come into contact with a tape, should be kept clean without scratches, dust, oil, etc.

The tape transport system has been adjusted before the unit is shipped from the factory. Therefore, when parts in the transport system are replaced, the transport system is stabilized by only adjusting the new parts correctly.

1. Reek Disk Height Adjustment

Purpose: To set the reels of the cassette to the specified height, thus determining the height of tape.

Test equipment/jigs	Preparation for adjustment	State of VTR	Adjustment points
• Master plane (Parts No.7099041) • Reel disk height jig (Parts No.7099038)	1) Remove the cassette loading mechanism. 2) Mount the master plplace and place the reel disk height jig on it.	——	• Spacers in the supply and take-up reel disks

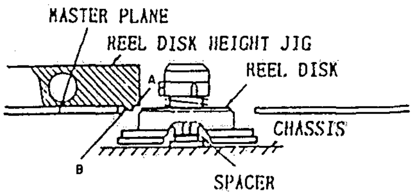
Adjustment procedure

1) Check that the reel disk is between sections A and B of the reel disk height jig.
2) If the disk is not between sections A and B of the jig, replace the spacers (0.5mm thick) in the reel disk or adjust them.

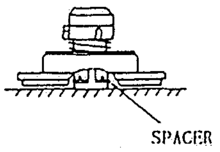
[Caution]

When the tension arm and tension band are removed, adjust the tension pole position and tension after reinstalling them.

Adjustment diagram


MASTER PLANE
REEL DISK HEIGHT JIG
A
REEL DISK
CHASSIS
B
SPACER

SUPPLY REEL DISK



TAKE-UP REEL DISK

2. Tension Pole Position and Tension Adjustment

Purpose: To make the tension of tape constant so that the contact between the video heads and tape is stabilized.

Test equipment/jigs	Preparation for adjustment	State of VTR	Adjustment points
Position adjustment ——	——	1) Remove the top cover. 2) Set the VTR to the loading state without inserting a cassette. (See page 4-11)	Position adjustment: Tension band holder
		Tension adjustment 3) Play the tension cassette.	Tension adjustment: Tension spring hooking position

Adjustment procedure

- Position Adjustment -

1) Loosen the tension band retaining screw.
2) Insert the tension band holder into one of grooves 1 to 3 and set the gap between the tension pole and chassis -1 to 0.5mm.
3) Tighten the tension band retaining screw.
4) After adjustment is completed, perform loading without inserting a cassette and recheck the tension pole position.

- Tension Adjustment -

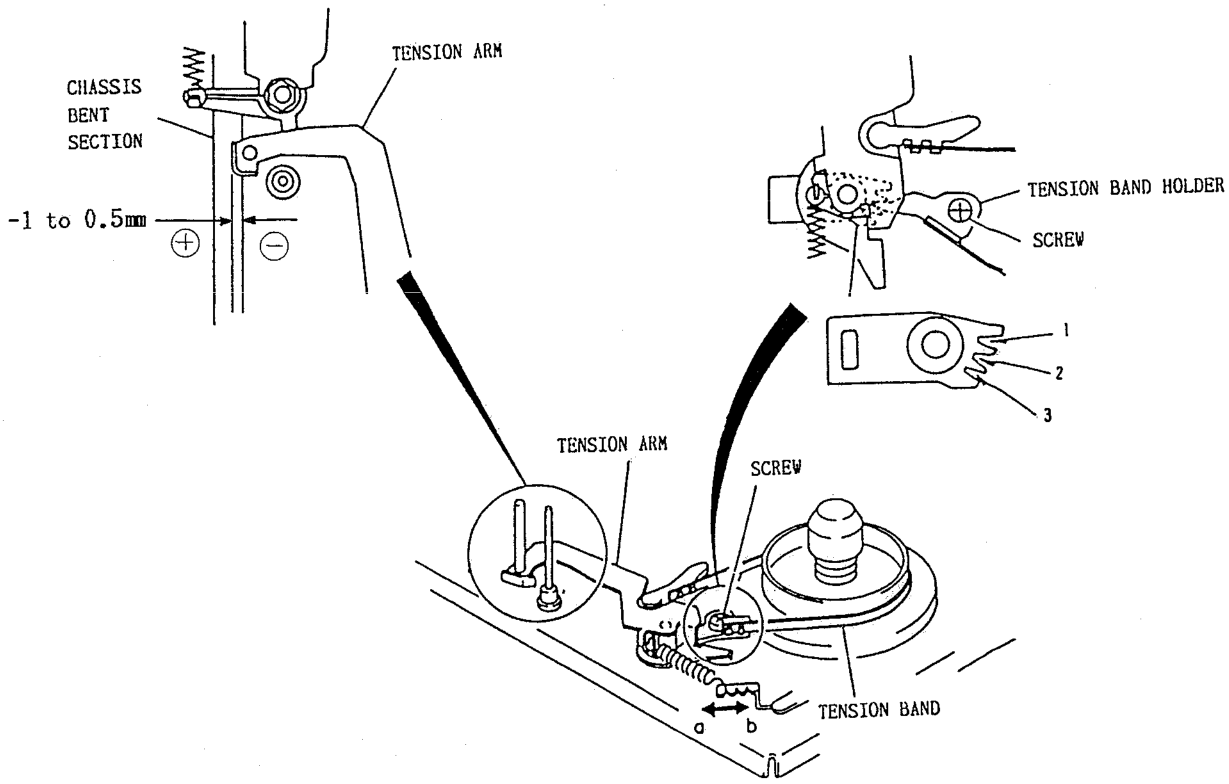
Reading of tension cassette: 34 to 44 g-cm (reference value)

If the reading is higher than the reference, move the spring in direction (a).

If the reading is lower than the reference, move the spring in direction (b).

Caution: When the tension position was changed greatly (more than 6 g-cm), recheck the tension pole position. If it is drifted, readjust the tension pole position and tension.

Adjustment diagram



3. Guide Pole Height Adjustment

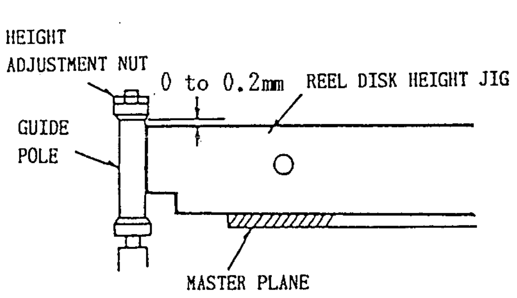
Purpose: To regulate the tape height.

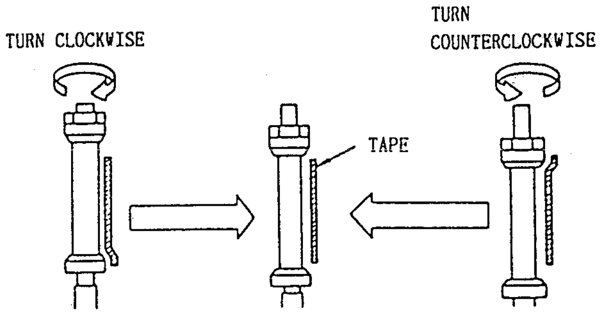
Test equipment/jigs	Preparation for adjustment	State of VTR	Adjustment points
• Master plane (Parts No.7099041) • Reel disk height jig (Parts No.7099038)	1) Remove the cassette loading mechanism. 2) Mount the master plane and place the reel disk height jig on it.	———	• Nuts on the supply and take-up guide poles
• Blank tape	———	• Playback mode	

Adjustment procedure

1) Set the clearance between the bottom of the guide pole's upper flange and top of the reel disk height jig is 0 to 0.2mm.
2) Load a blank tape to run it and check that the tape does not ride over the upper and lower flanges of the guide pole.
3) If the tape rides over either flange, adjust the height of guide pole as follows.
   If the tape rides over the upper flange, turn the nut counterclockwise.
   If the tape rides over the lower flange, turn the nut clockwise.

Adjustment diagram


HEIGHT
ADJUSTMENT NUT
0 to 0.2mm
REEL DISK HEIGHT JIG
GUIDE
POLE
MASTER PLANE


TURN CLOCKWISE
TURN
COUNTERCLOCKWISE
TAPE

4. Guide Roller Height Adjustment

Purpose: To regulate the height of tape so that the bottom of tape runs along the tape guide line on the cylinder.

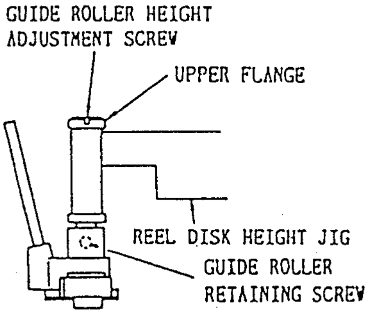
Coarse Adjustment

Test equipment/jigs	Preparation for adjustment	State of VTR	Adjustment points
• Master plane (Parts No.7099041) • Reel disk height jig (Parts No.7099038) • 0.9mm Hexagonal wrench	1) Remove the cassette loading mechanism. 2) Mount the master plane and place the reel disk height jig on it.	———	Height adjustment screws on the supply and take-up guide rollers

Adjustment procedure

1) Loosen the guide roller retaining screw (so that the guide roller does not turn during loading, unloading and play).
2) Align the bottom of the guide roller's upper flange and the top of the reel disk height jig.
3) Perform the precise adjustment continuously.

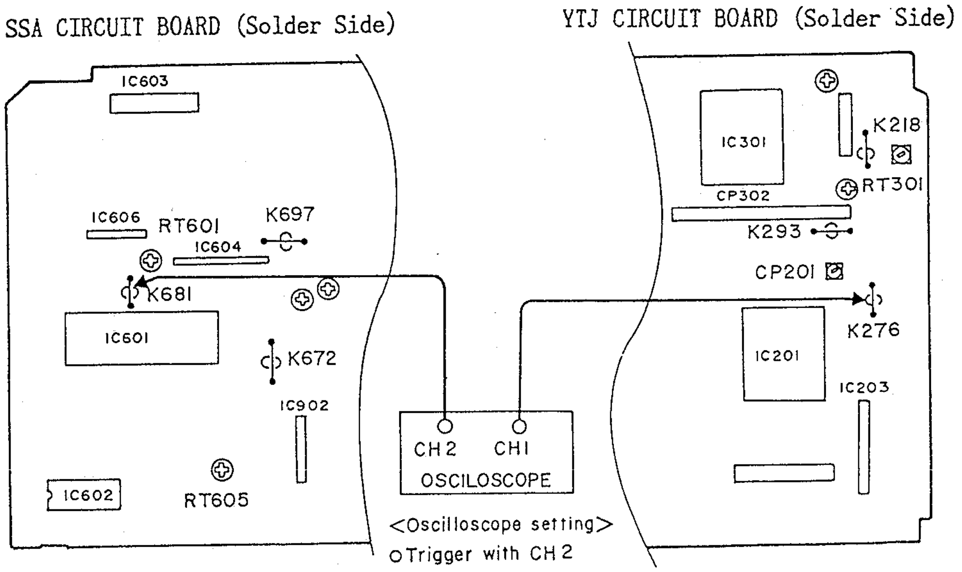
Adjustment diagram


GUIDE ROLLER HEIGHT
ADJUSTMENT SCREW
UPPER FLANGE
REEL DISK HEIGHT JIG
GUIDE ROLLER
RETAINING SCREW

Precise Adjustment

Test equipment/jigs	Preparation for adjustment	State of VTR	Adjustment points
· Oscilloscope	· CH-1: K276 (PB FM) · CH-2: K681 (SW 25Hz)	· Play alignment tape.	· Guide roller height adjustment screws
· Alignment tape (Parts No.7099052) · Hexagonal wrench			

Connection diagram

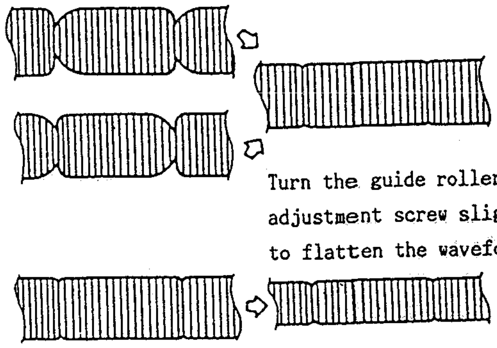

SSA CIRCUIT BOARD (Solder Side)
YTJ CIRCUIT BOARD (Solder Side)
IC603
IC606
RT601
K697
IC604
K681
IC601
K672
IC902
IC602
RT605
CH2
CH1
OSCILOSCOPE
IC301
K218
RT301
CP302
K293
CP201
K276
IC201
IC203

<Oscilloscope setting>
○Trigger with CH2

Adjustment procedure

1) Tracking control (playback) : Centre position (When this adjustment is performed after the cylinder has been replaced, set the tracking control so that the FM output is maximum.)
2) Height adjustment screw: Flatten the FM waveform.
3) Turn the tracking control (playback) to the right.
4) Check that the FM drops at the start and end of FM envelope are unifrom.
5) Tighten the quide roller retaining screw.

Waveforms



Turn the guide roller height adjustment screw slightly to flatten the waveform.

Tracking control at centre

Turn the tracking control to the right

5. Audio / Control (A/C) Head Adjustment

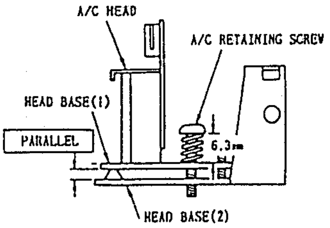
Purpose: To keep the contact between the tape and head even so the specified track is recorded and played back.

Coarse Adjustment

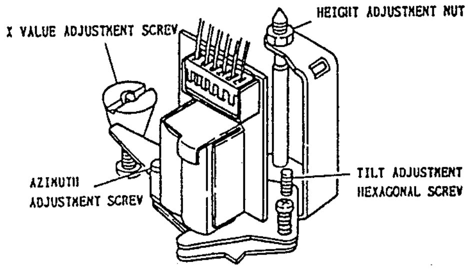
Test equipment/jigs	Preparation for adjustment	State of VTR	Adjustment points
• Master plane (Parts No.7099041) • Reel disk height jig (Parts No.7099038) • 1.5mm Hexagonal wrench	1) Remove the cassette loading mechanism. 2) Mount the master plane and place the reel disk height jig on it.	———	• A/C head retaining screw • Azimuth adjustment screw • Height adjustment nut • Tilt adjustment screw
• Blank tape	———	• Run the blank tape.	

Adjustment procedure/adjustment diagrams

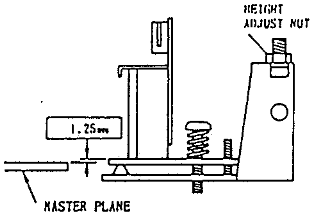
1) A/C head retaining screw: Check that the spring section of the A/C head retaining screw protrudes 6.3mm over the top of head base (1).


A/C HEAD
A/C RETAINING SCREW
HEAD BASE(1)
PARALLEL
6.3mm
HEAD BASE(2)

2) Tilt adjustment hexagonal screw, azimuth adjustment screw: Make head bases (1) and (2) parallel.

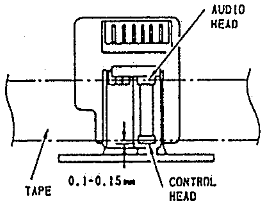

X VALUE ADJUSTMENT SCREW
HEIGHT ADJUSTMENT NUT
AZIMUTH ADJUSTMENT SCREW
TILT ADJUSTMENT HEXAGONAL SCREW

3) Height adjustment nut: Set the clearance between the master plane and head base (1) to approx. 1.25mm.


HEIGHT ADJUST NUT
1.25mm
MASTER PLANE

4) Remove the adjustment jigs, load a blank tape and set the VTR to the play mode.

5) Check that there is no conspicuous curling and riding over around the A/C head. If there is conspicuous curling or riding over, readjust the tilt adjustment hexagonal screw, azimuth adjustment screw and height adjustment nut. When the bottom edge of tape is 0.1 to 0.15mm from the bottom edge of the control head's core, the height of A/C head is ideal.


AUDIO HEAD
TAPE
0.1-0.15mm
CONTROL HEAD

6) Perform the precise adjustment continuously.

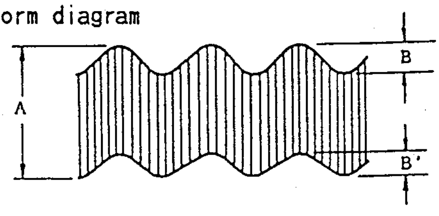
Precise Adjustment

Test equipment/jigs	Preparation for adjustment	State of VTR	Adjustment points
• Oscilloscope	• Audio output jack	• Play alignment tape (Stairsteps Section)	• Azimuth adjustmnt screw • Height adjustment nut • Tilt adjustment screw
• Alignment tape (Parts No.7099052) • 1.5mm Hexagonal wrench			

Adjustment procedure

1) Adjust the azimuth adjustment screw, height adjustment nut and tilt adjustment hexagonal screw slightly, alternately: Make the audio output maximum and flat (minimum fluctuations).

Waverform diagram



A:Maximum BB':Minimum

6. X Value Adjustment

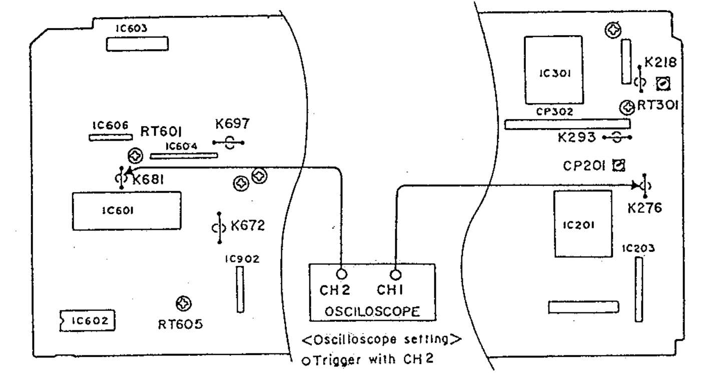
Purpose: To obtain compatibility with other VTRs.

Note: Always perform the tracking preset adjustment (page 3-4) that should be done when the cylinder is replaced before adjusting the X value.

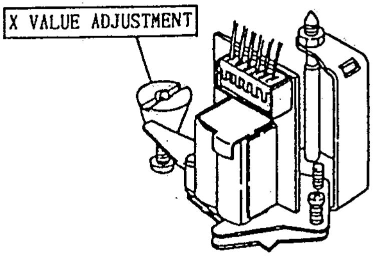
Test equipment/jigs	Preparation for adjustment	State of VTR	Adjustment point
· Oscilloscope	· CH-1: K276 (PB FM) · CH-2: K681 (SW 25Hz)	· Play alignment tape (Staisteps Section)	· X value adjustment screw
· Alignment tape (Parts No.7099052) · 1.5mm Hexagonal wrench	—		

Connection diagram

SSA CIRCUIT BOARD (Solder Side)　　YTJ CIRCUIT BOARD (Solder Side)

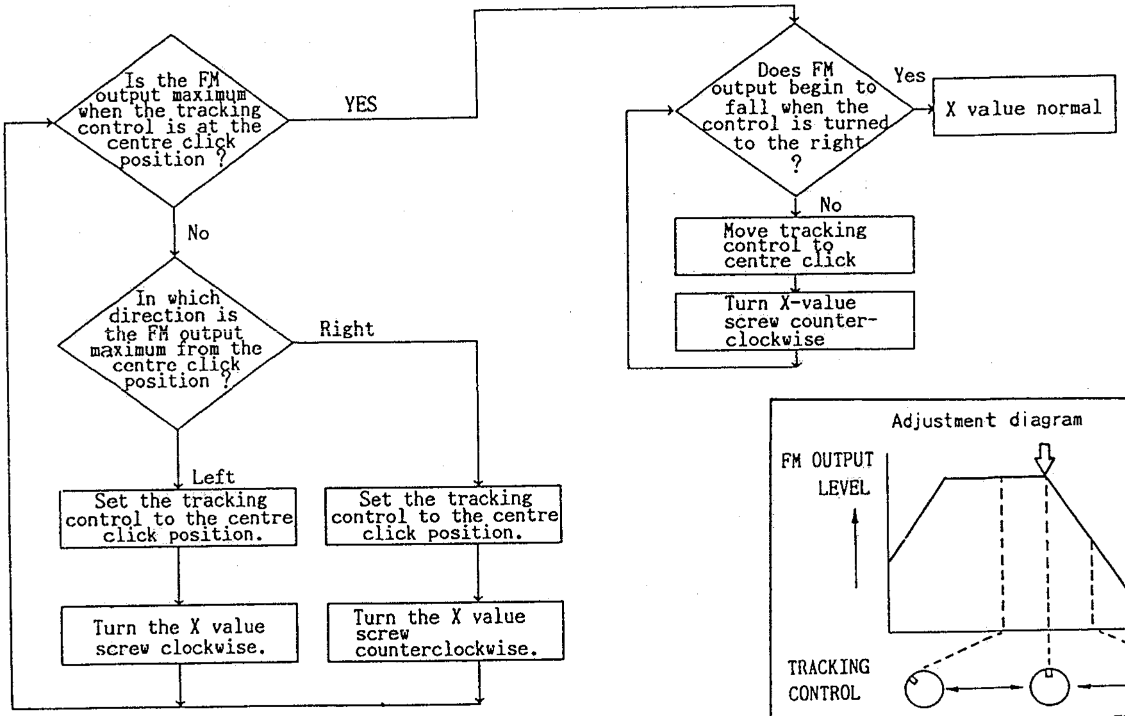

IC603
IC606
RT601
K697
IC604
K681
IC601
K672
IC902
IC602
RT605
CH2
CH1
OSCILOSCOPE
IC301
K218
CP302
RT301
K293
CP201
K276
IC201
IC203

<Oscilloscope setting>
○Trigger with CH2

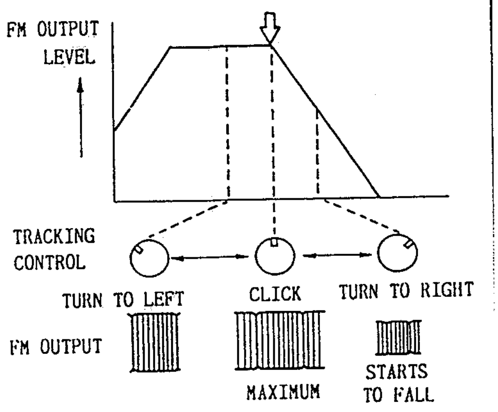

X VALUE ADJUSTMENT

Adjustment procedure

Since the 57μm head will trace over 49μm width track, centre tracking control and make adjustments to maximize FM output, or turn the control clockwise and adjust so that FM output begins to fall immediatel.


Is the FM output maximum when the tracking control is at the centre click position ?
YES
No
In which direction is the FM output maximum from the centre click position ?
Right
Left
Set the tracking control to the centre click position.
Set the tracking control to the centre click position.
Turn the X value screw clockwise.
Turn the X value screw counterclockwise.
Does FM output begin to fall when the control is turned to the right ?
Yes
X value normal
No
Move tracking control to centre click
Turn X-value screw counter-clockwise

Adjustment diagram

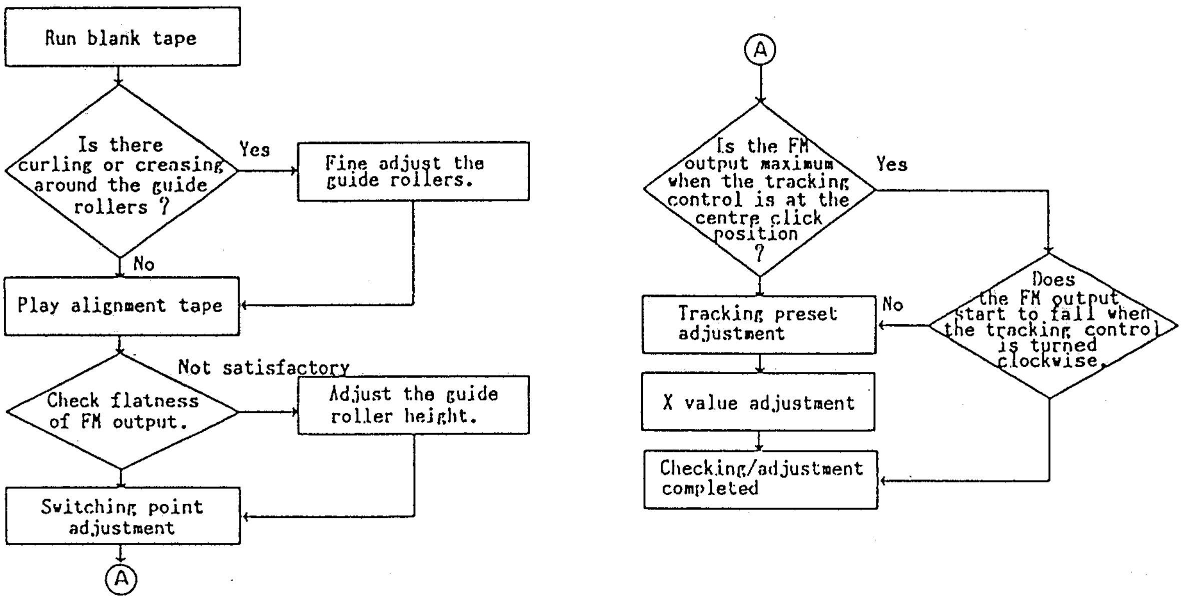

FM OUTPUT LEVEL
TRACKING CONTROL
TURN TO LEFT
CLICK
TURN TO RIGHT
FM OUTPUT
MAXIMUM
STARTS TO FALL

7. Adjustments After Replacing Cylinder (Video Heads)

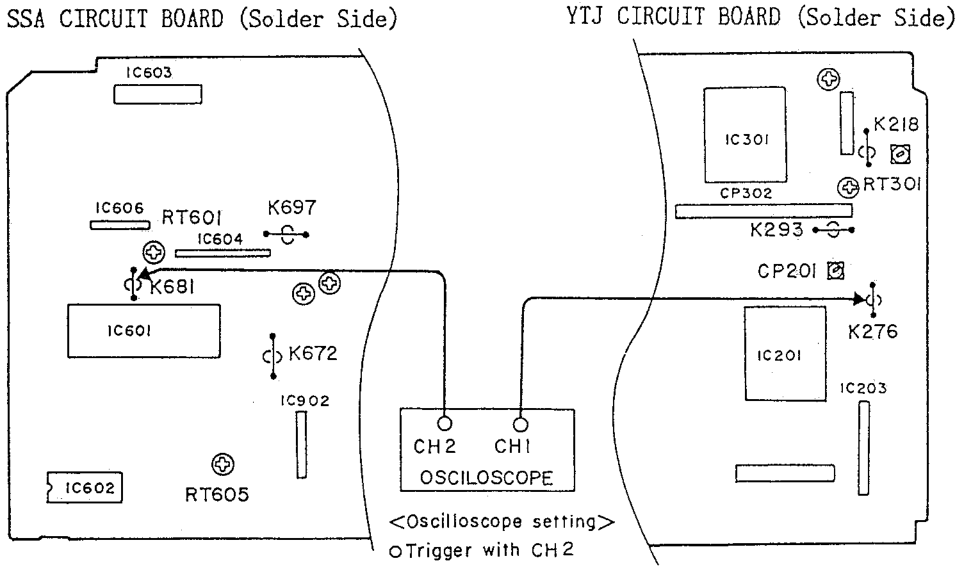
Purpose: To suppress drift in the height relative to the guide roller and to minimize the X value after replacing the cylinder.

Test equipment/jigs	Preparation for adjustment	State of VTR	Adjustment points
• Oscilloscope	Checking the flatness • CH-1: K276 (PB FM) • CH-2: K681 (SW 25Hz)	• Run the blank tape • Play alignment tape	• Guide rollers (precise adjustment on page 4-5) • Switching point (page 3-3) • Tracking preset (page 3-4) • X value (page 4-8)
• Alignment tape (Parts No. 7099052) • Blank tape • 0.9mm Hexagonal wrenches • X value adjustment screwdriver	—		

Checking/adjustment procedure


Run blank tape
Is there curling or creasing around the guide rollers ?
Yes
Fine adjust the guide rollers.
No
Play alignment tape
Not satisfactory
Check flatness of FM output.
Adjust the guide roller height.
Switching point adjustment
A
A
Is the FM output maximum when the tracking control is at the centre click position ?
Yes
Does the FM output start to fall when the tracking control is turned clockwise.
No
Tracking preset adjustment
X value adjustment
Checking/adjustment completed

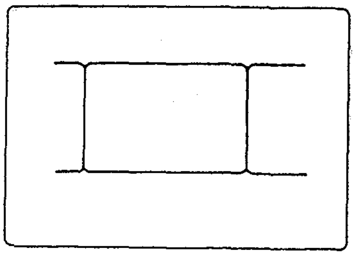
Adjustment diagram


SSA CIRCUIT BOARD (Solder Side)
YTJ CIRCUIT BOARD (Solder Side)
IC603
IC606
RT601
K697
IC604
K681
IC601
K672
IC902
IC602
RT605
IC301
K218
CP302
RT301
K293
CP201
K276
IC201
IC203
CH2
CH1
OSCILOSCOPE

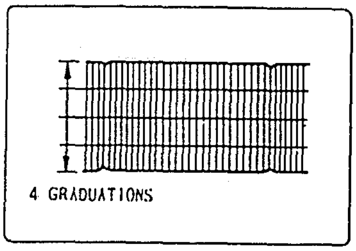
<Oscilloscope setting>
○Trigger with CH2

Checking procedure of the flatness and fluctuations of FM output and waveform diagrams

1) Use the tracking control to maximize the FM output.

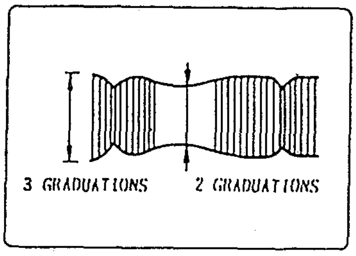


2) Fine tune the voltage level range of the oscilloscope to set the FM output to 4 graduations.



3) Turn the tracking control to set the maximum amplitude of the FM output to 3 graduations.

4) Check that the mimimum amplitude is more than 2 graduations.



5) Check that the level fluctuations between the maximum and minimum amplitudes are less than 13%.

8. Tension/Torque Checks

Purpose: It is necessary to check the tension, torque and compression force at the tape take-up section and moving section to make the tape running smooth and satisfy the basic performance of the VTR. Check these if the tape running is not smooth or the tape speed is abnormal.

Test equipment/jigs	State of VTR
· Torque gauge · Torque gauge adaptor	· Set the VTR to each operaion mode without inserting a cassette. (See page 4-11)

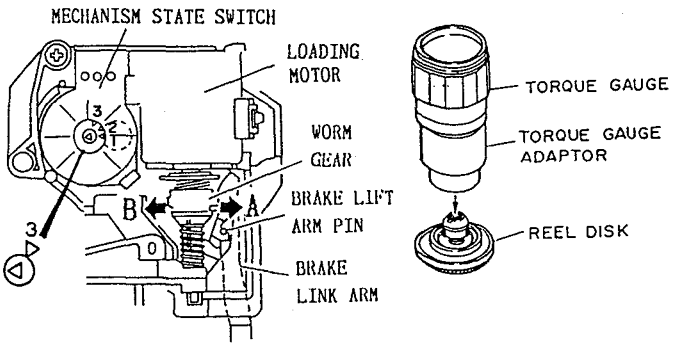
Item	VTR operation mode	Measured reels	Measured value
Main brake torque	Stop (Note-1)	Supply & take-up reel	170 g·cm or more
Slack removal torque	Unloading	Supply reel	90 ~ 230 g·cm
Fast forward torque	Fast forward	Take-up reel	400 g·cm or more
Rewind torque	Rewind	Supply reel	400 g·cm or more
Take-up torque	Play	Take-up reel	80 ~ 170 g·cm
Back-tension torque	Fast forward	Supply reel	4 ~ 25 g·cm
	Rewind	Take-up reel	

Checking method

The values are measured using a torque gauge and torque gauge adaptor with the torque gauge fixed.

Note-1: Turn the worm gear in the direction of arrow (A) in the stop mode and shift the pointer on the mechanism state switch to "3" so as to apply the main brake to the supply reel disk. Then turn the worm gear in the direction of arrow (B) so that brake link arm is released from the brake lift arm pin. (Set the reel drive gear (idler) to the centre position.)

Adjustment diagram



Note: To set the VTR to the loading state without inserting a cassette

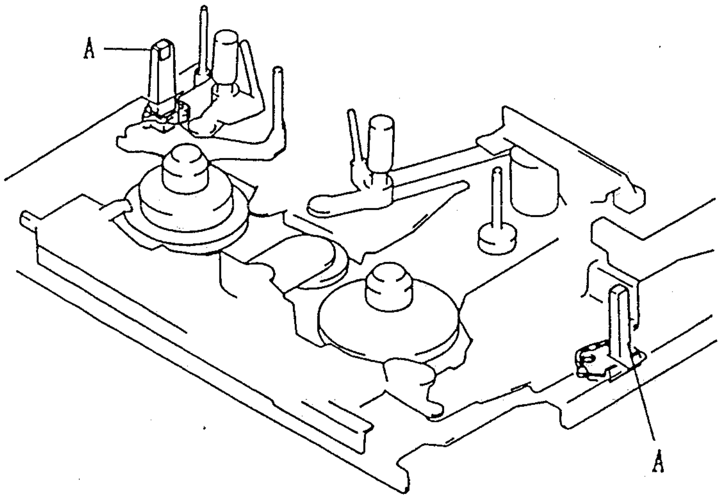
1) Remove the top cover and front panel.
2) Remove the cassette loading mechanism.
3) Unplug the power cord form the AC outlet.
4) Cover the supply and take-up end sensors (sections A in the figure below) with black masking tape, etc. to shut off the light.
5) Plug the power cord into the AC outlet.
6) Turn the VTR on.
   The VTR can accept the inputs of each mode in this state. However, the rewind operation cannot be performed for more than a few seconds because the take-up reel disk is in the stop state and reel pulses cannot be detected.

(Cautions)

Always return the VTR·to the original state in the following order after the above operations have been performed.

1) Remove the masking tape, etc. from the supply and take-up end sensors.
2) Unplug the power cord from the AC outlet to reset the system control microprocessor.

Adjustment diagram



MAINTENANCE/INSPECTION PROCEDURE

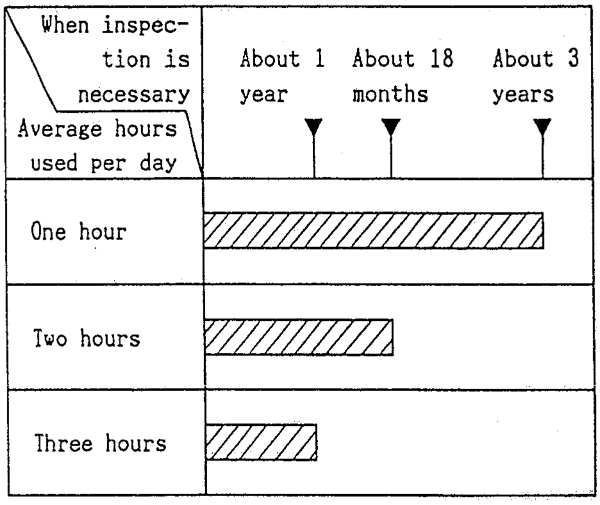
1. Required Maintenance

The recording density of a VTR is much higher than that of an audio tape recorder. VTR components must be very precise, at tolerances of 1/1000mm, to ensure compatible with other VTRs. If any of these components are worn or dirty, the symptoms will be the same as if the part is defective.To ensure good picture, periodic inspection and maintenance, including replacement of worn-out parts and lubrication, is necessary.

2. Scheduled Maintenance

Schedules for maintenance and inspection are not fixed because they vary greatly according to the way in which the customer uses the VTR, and the environment in which the VTR is used. But, in general home use, a good picture will be maintained if the inspection and maintenance is made every 1,000 hours. The table below shows the relation between time used and inspection period.

Table 1



3. Check before starting Repairs

The following faults can be remedied by cleaning and oiling. Check the need for lubrication and the conditions of cleanliness in the unit. Check with the customer to find out how often the unit is used. If from that, you determine that the unit is ready for inspection and maintenance, check the following parts.

Table 2

Phenomenon	Inspection Location
Poor S/N, no colour	Dirt on video head or worn video head
Tape does not run or tape is slack	Dirt on pressure roller, reel belt or flywheel belt
Vertical jitter, horizontal jitter	Dirt on video head or in tape transport system
Colour beats	Dirt on full-erase head
Low volume of sound distorted	Dirt on audio/control head
Fast forward or rewind is not done or rotation is slow	Dirt on reel belt

4. Tools Needed for Inspection and Maintenance

(1) Head cleaning kit
(2) VTR oil kit
(3) Alcohol (or freon)
(4) Gauze
(5) Screwdriver for adjusting X-value

Table 3 Locations for greasing and Oiling using the Kit

Name	Oil or Greasing Location
Pan motor oil (X10W40)	Oil high-speed rotating sections
Sonic Slidas Oil (#1600)	Oil low-speed rotating sections
Hitazol (M0138)	Grease metal parts under heavy load
Froil (GB-TS-1)	Lubricate metal or molded sections under light load
Lock paint	Fix adjustment screws

The above oils and greases are in the kit prepared especially for VTR maintenance. Use this kit for lubrication.

5. Maintenance Procedures

5-1. Cleaning

(1) Cleaning video head

First use a cleaning tape. If dirt on head is too stubborn to remove by tape, use the head cleaning kit. Coat the cleaning stick with cleaning fluid to the point indicated. Touch the stick to the head tip and gently turn the head (rotating cylinder) to the right and left.

(Do not move the stick vertically and make sure that only the buckskin on the stick comes into contact with the head. Otherwise, the head may be damaged.)

Thoroughly dry the head. Then test run a tape. If cleaning fluid remains on the video head, the tape may be damaged when it comes into contact with the head surface.

(2) Cleaning the tape transport system and drive system, etc.

Wipe with gauze wetted with alcohol or freon.

Note:

① The tape transport system is the system which comes into contact with the running tape. The drive system consists of those parts which run the tape.

② Make sure that during cleaning you do not touch the tape transport system with the tip of a screwdriver and that no force is applied to the system that would cause deforming.

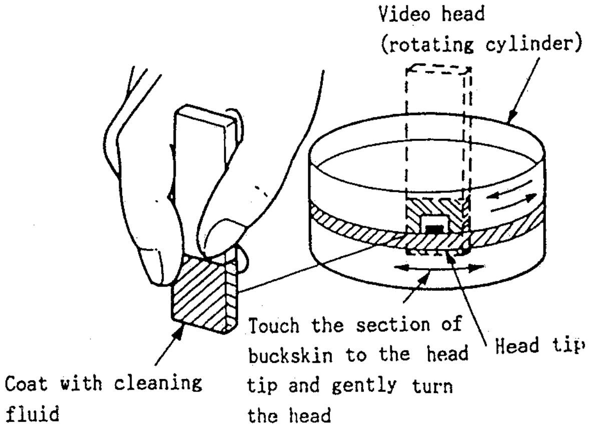
5-2. Lubrication

(1) Guidelines for lubricating with oil

Use the oiler to apply one or two drop of pan motor oil or Sonic Slidas oil. Make sure not to use too much oil because it may spill over or leak out coming in contact with rotating parts and causing slippage or other problems. If too much oil is applied, wipe clean with alcohol of freon.

(2) Periodic oil lubrication

Oil at specified locations every 1,000 hours.


Video head
(rotating cylinder)
Touch the section of buckskin to the head tip and gently turn the head
Head tip
Coat with cleaning fluid

5-3. Greasing

(1) Greasing guidelines

Apply grease, Hitazol or Froil, with a stick or brush. Do not use excess grease. It may come into contact with the tape transport or drive system. Wipe any excess and clean with gauze wetted in alcohol or freon.

(2) Periodic greasing

Grease specified locations every 5,000 hours.

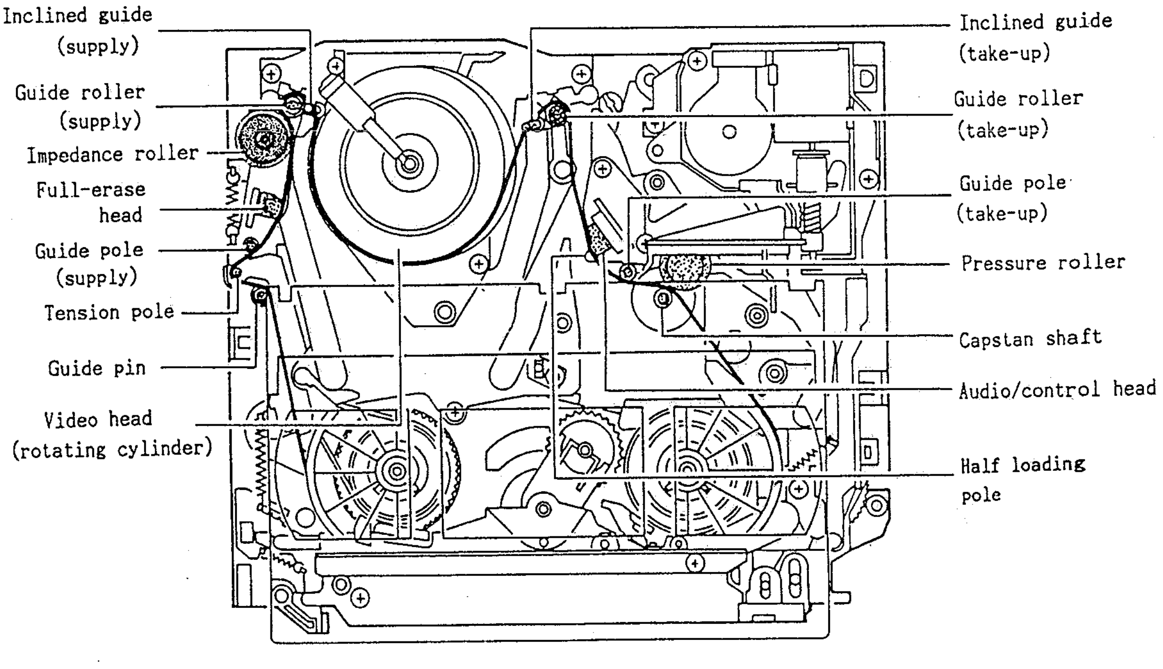

Inclined guide (supply)
Guide roller (supply)
Impedance roller
Full-erase head
Guide pole (supply)
Tension pole
Guide pin
Video head (rotating cylinder)
Inclined guide (take-up)
Guide roller (take-up)
Guide pole (take-up)
Pressure roller
Capstan shaft
Audio/control head
Half loading pole

Fig.1 Tape Transport System

6. Inspection Locations

	Phenomenon	Inspection Location	Replacement
①	Colour beats	Dirt on full-erase head	
②	Poor S/N, no colour	Dirt on video head	○
③	Vertical jitter	Dirt on video head Dirt in tape transport system	
④	Low volume, sound distorted	Dirt on audio/control head	○
⑤	Tape does not run. Tape is slack.	Dirt on pressure roller	○

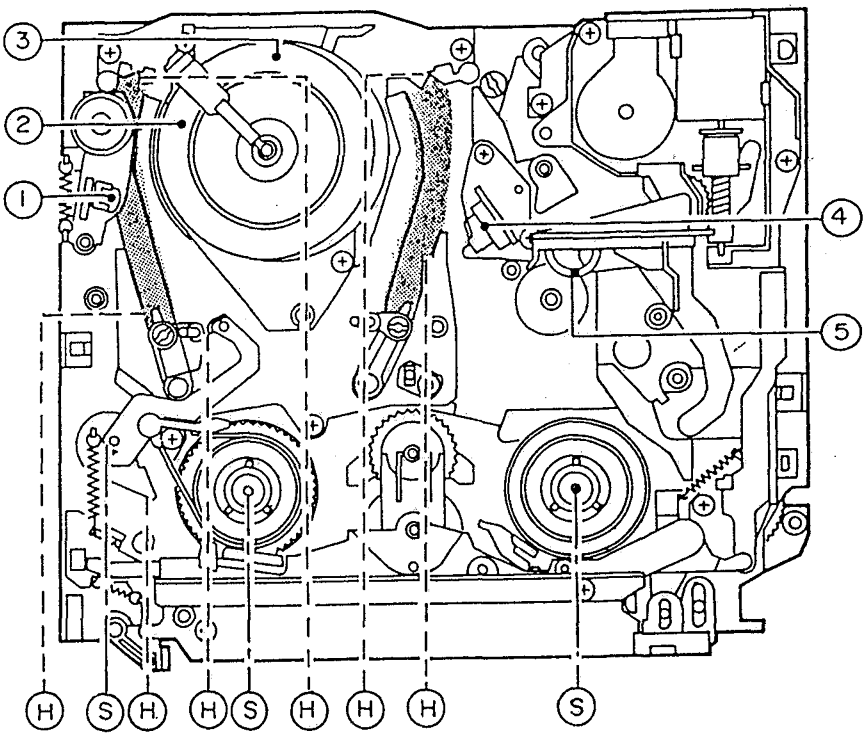


Fig. 2 Top View of Mechanism

Phenomenon	Inspection Location	Replacement
Do not fast forward or rewind, or rotation is slow Tape does not run Slack tape	Dirt on reel belt	○

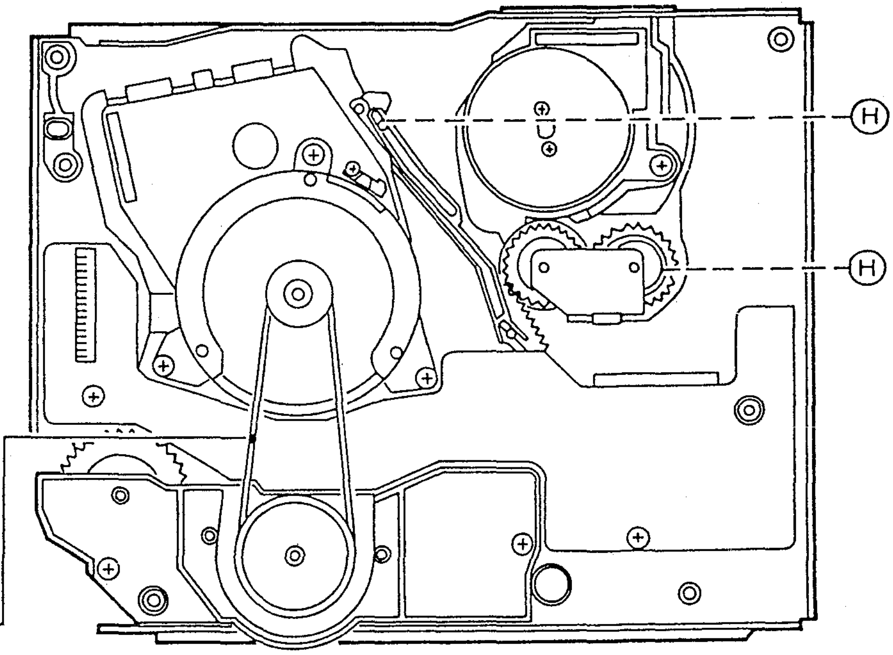


Fig.3 Bottom View of Mechanism

Note: If locations marked with ○ do not operate normally after cleaning, they are worn. Replace.
See the EXPLODED VIEWS at the end of this manual as well as the above illustrations for the sections to be lubricated and greased.

Ⓢ: Sonic Slidas oil (oil locations)
Ⓗ: Hitazol (grease locations)

Digital Process Circuit Board Fault Analysis Flowcharts

The following are flowcharts for the efficient analysis of faults in the digital process circuit board.

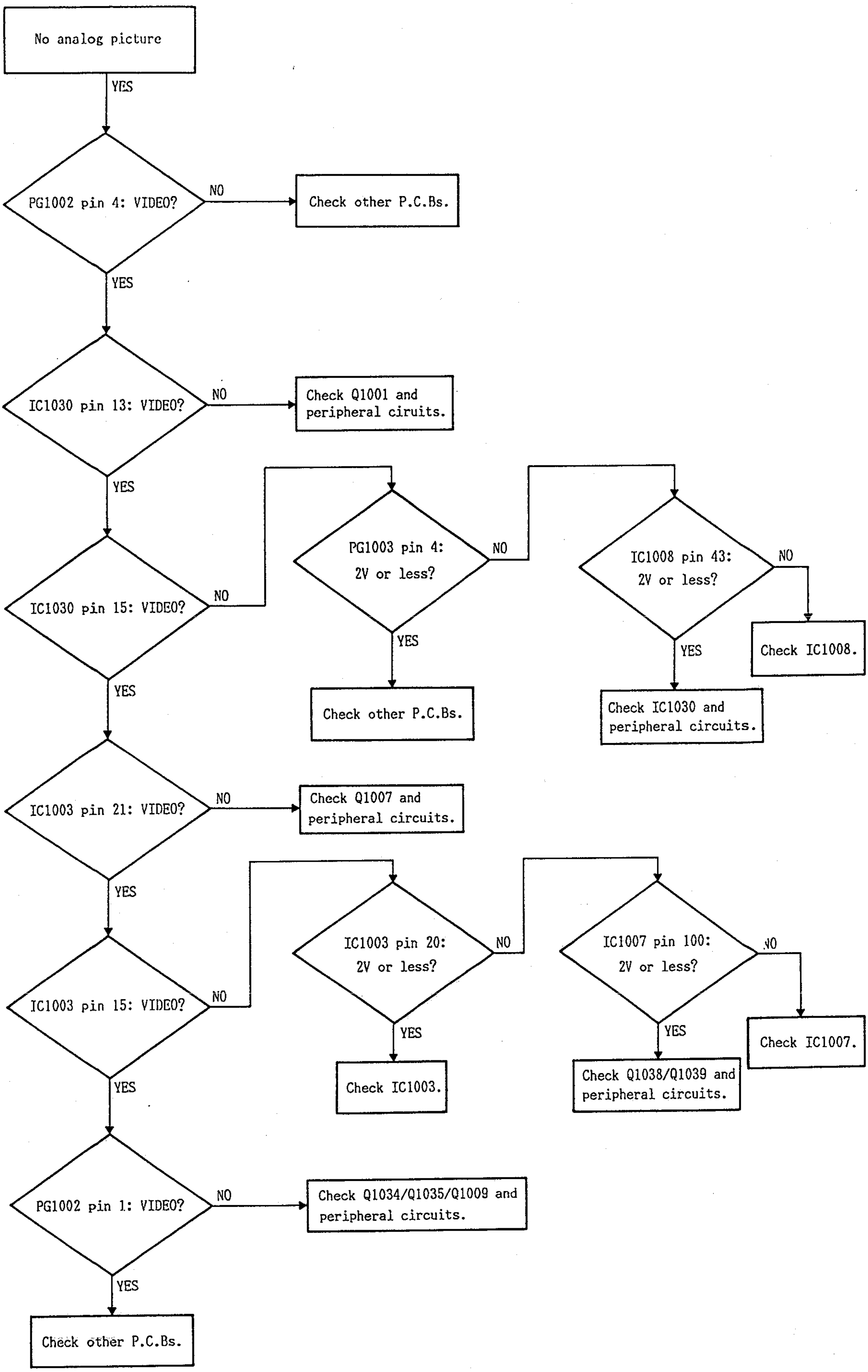
Cautions :

- Check that the supply voltages, A5V (PG1002 pin 9) and S12V (PG1002 pin 3), to other ciurcit boards are provided.
- Be sure to perform coarse adjustment of the digital process circuit board.
- When no special instructions are given, apply a colour bar signal to the video input jack and operate the channel select buttons to select "AUX".

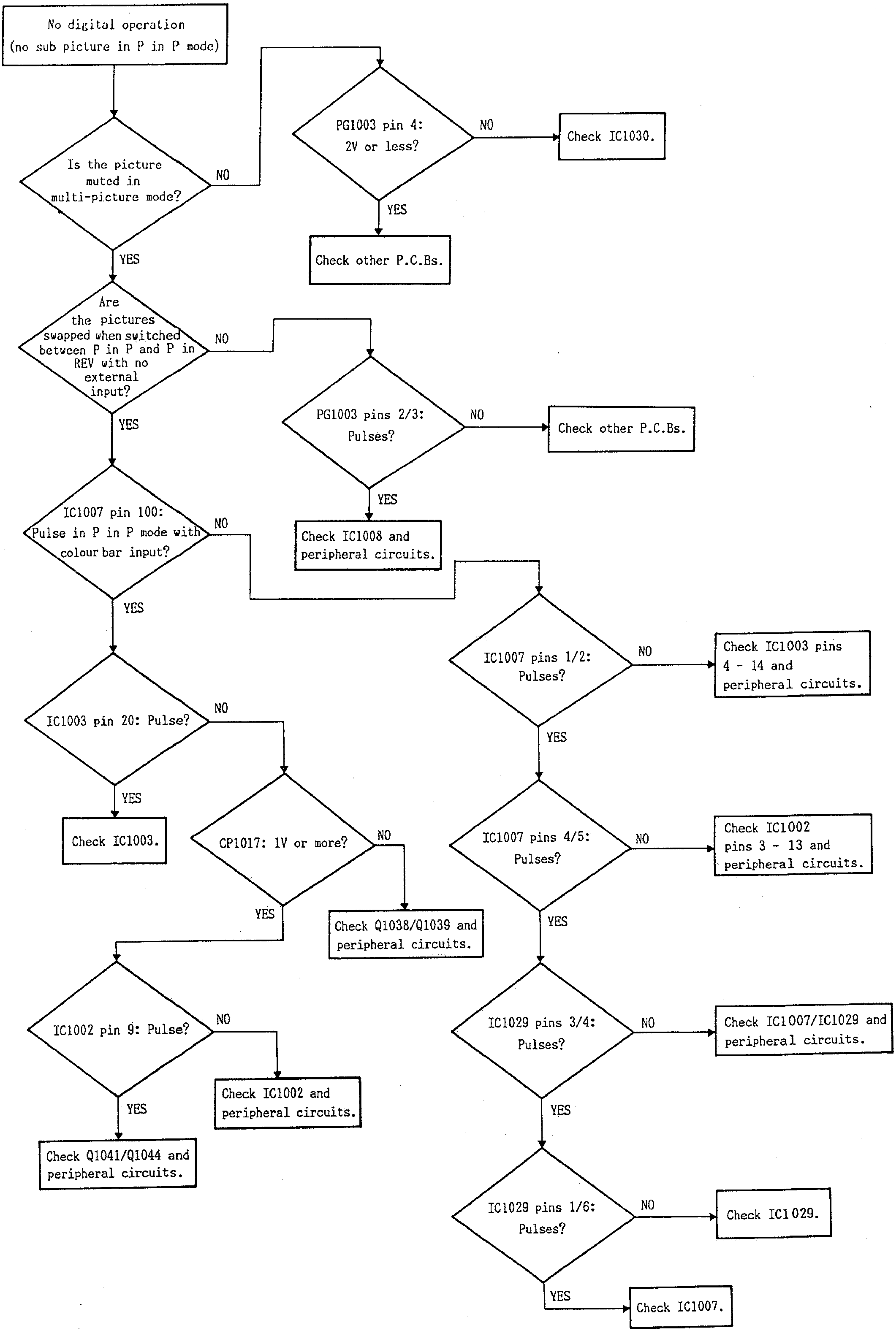
Fault analysis : Contents of flowcharts

1. No picture when the OPERATE switch is turned on. ························ 4-16
2. No sub picture in the P in P mode. (No digital operation) ··············· 4-17
3. No luminance in the digital picture (the whole picture is black) ········ 4-18
4. No colour in the digital picture (partially or fully) ···················· 4-19
5. Horizontal sync distortion (horizontal scrolling) ························ 4-20
6. Vertical sync distortion (vertical scrolling) ··························· 4-21
7. Missing of gradation (picture with solarized effect) ···················· 4-22
8. Unstable colour (colour rotation, colour change) ························ 4-22
9. The faults other than above are summarized in each mode. ················ 4-23

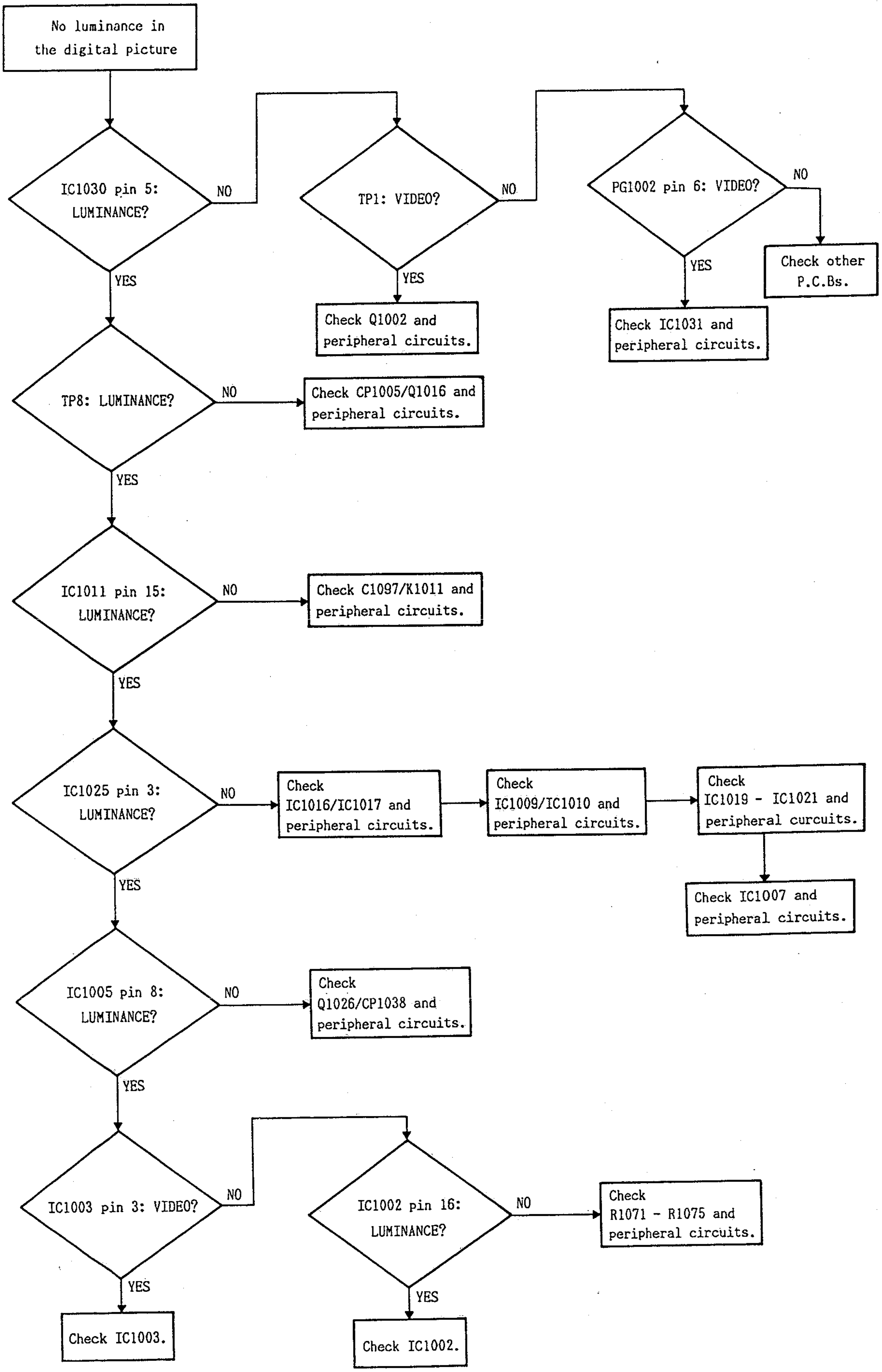
1.


No analog picture
YES
PG1002 pin 4: VIDEO?
NO
Check other P.C.Bs.
YES
IC1030 pin 13: VIDEO?
NO
Check Q1001 and peripheral ciruits.
YES
IC1030 pin 15: VIDEO?
NO
PG1003 pin 4: 2V or less?
NO
IC1008 pin 43: 2V or less?
NO
Check IC1008.
YES
Check IC1030 and peripheral circuits.
YES
Check other P.C.Bs.
YES
IC1003 pin 21: VIDEO?
NO
Check Q1007 and peripheral circuits.
YES
IC1003 pin 15: VIDEO?
NO
IC1003 pin 20: 2V or less?
NO
IC1007 pin 100: 2V or less?
NO
Check IC1007.
YES
Check Q1038/Q1039 and peripheral circuits.
YES
Check IC1003.
YES
PG1002 pin 1: VIDEO?
NO
Check Q1034/Q1035/Q1009 and peripheral circuits.
YES
Check other P.C.Bs.

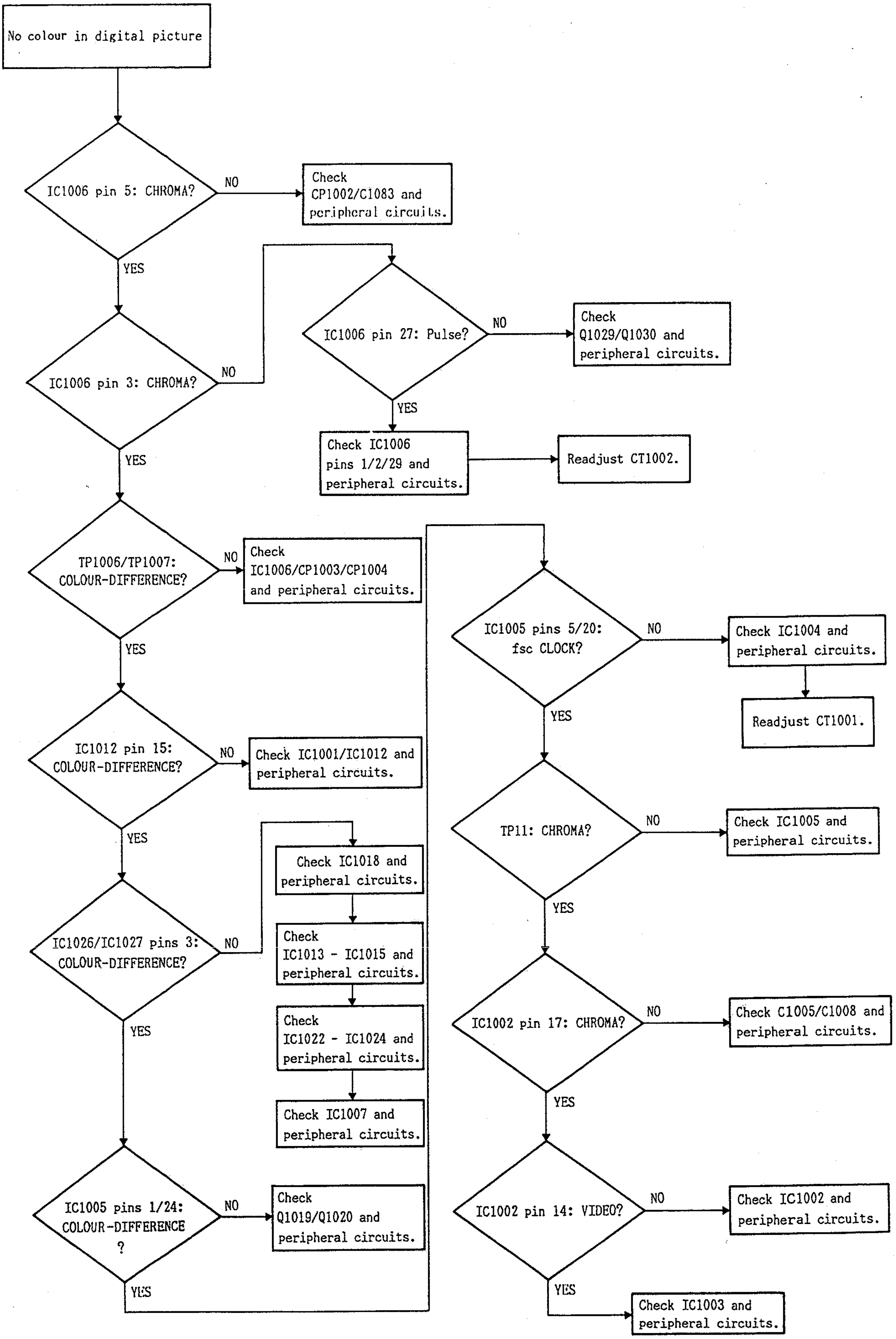
2.


No digital operation
(no sub picture in P in P mode)
Is the picture muted in multi-picture mode?
NO
PG1003 pin 4: 2V or less?
NO
Check IC1030.
YES
Check other P.C.Bs.
YES
Are the pictures swapped when switched between P in P and P in REV with no external input?
NO
PG1003 pins 2/3: Pulses?
NO
Check other P.C.Bs.
YES
Check IC1008 and peripheral circuits.
YES
IC1007 pin 100: Pulse in P in P mode with colour bar input?
NO
IC1007 pins 1/2: Pulses?
NO
Check IC1003 pins 4 - 14 and peripheral circuits.
YES
IC1007 pins 4/5: Pulses?
NO
Check IC1002 pins 3 - 13 and peripheral circuits.
YES
IC1029 pins 3/4: Pulses?
NO
Check IC1007/IC1029 and peripheral circuits.
YES
IC1029 pins 1/6: Pulses?
NO
Check IC1029.
YES
Check IC1007.
YES
IC1003 pin 20: Pulse?
YES
Check IC1003.
NO
CP1017: 1V or more?
NO
Check Q1038/Q1039 and peripheral circuits.
YES
IC1002 pin 9: Pulse?
NO
Check IC1002 and peripheral circuits.
YES
Check Q1041/Q1044 and peripheral circuits.

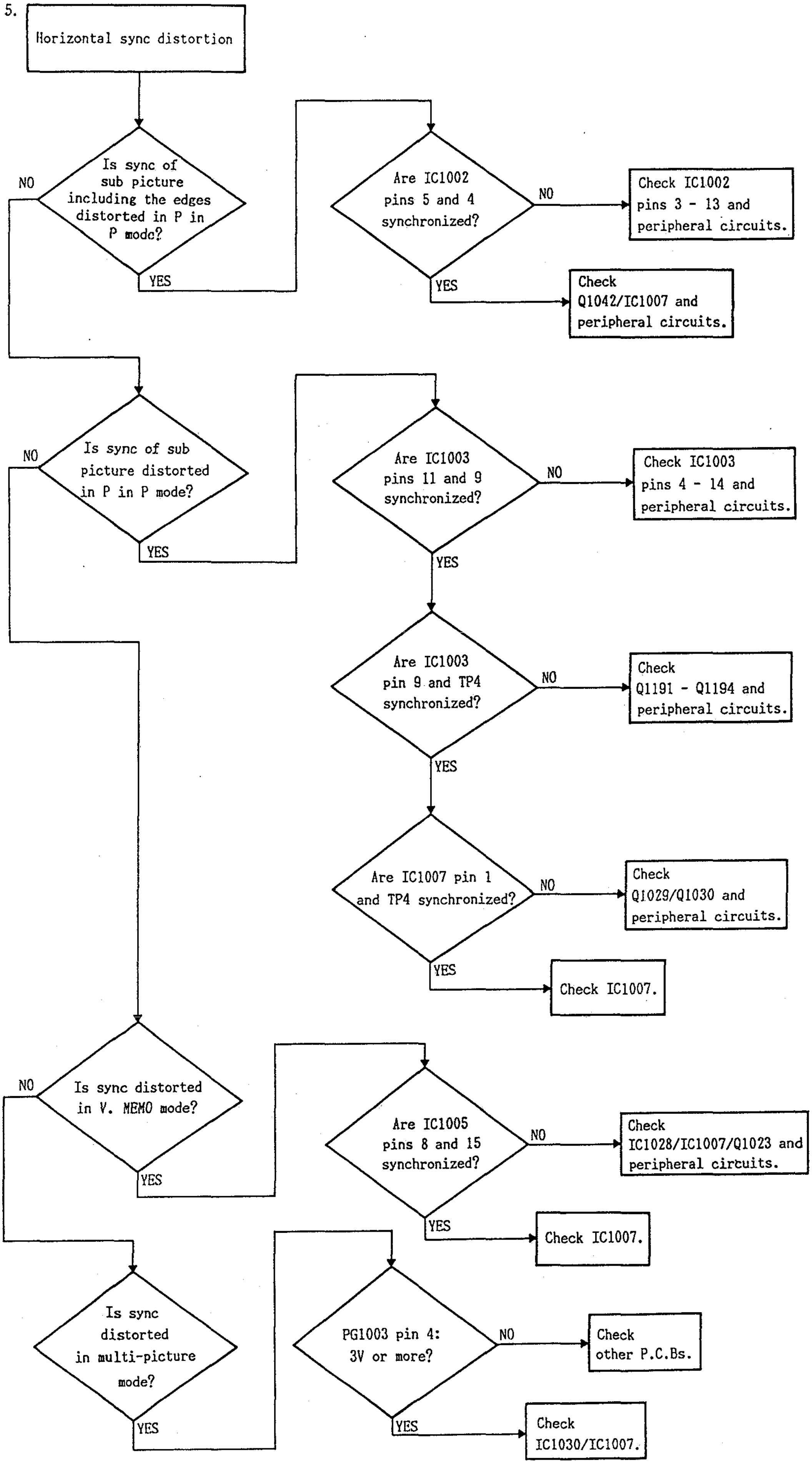
3.


No luminance in the digital picture
IC1030 pin 5: LUMINANCE?
NO
TP1: VIDEO?
NO
PG1002 pin 6: VIDEO?
NO
Check other P.C.Bs.
YES
Check IC1031 and peripheral circuits.
YES
Check Q1002 and peripheral circuits.
YES
TP8: LUMINANCE?
NO
Check CP1005/Q1016 and peripheral circuits.
YES
IC1011 pin 15: LUMINANCE?
NO
Check C1097/K1011 and peripheral circuits.
YES
IC1025 pin 3: LUMINANCE?
NO
Check IC1016/IC1017 and peripheral circuits.
Check IC1009/IC1010 and peripheral circuits.
Check IC1019 - IC1021 and peripheral curcuits.
Check IC1007 and peripheral circuits.
YES
IC1005 pin 8: LUMINANCE?
NO
Check Q1026/CP1038 and peripheral circuits.
YES
IC1003 pin 3: VIDEO?
NO
IC1002 pin 16: LUMINANCE?
NO
Check R1071 - R1075 and peripheral circuits.
YES
Check IC1003.
YES
Check IC1002.

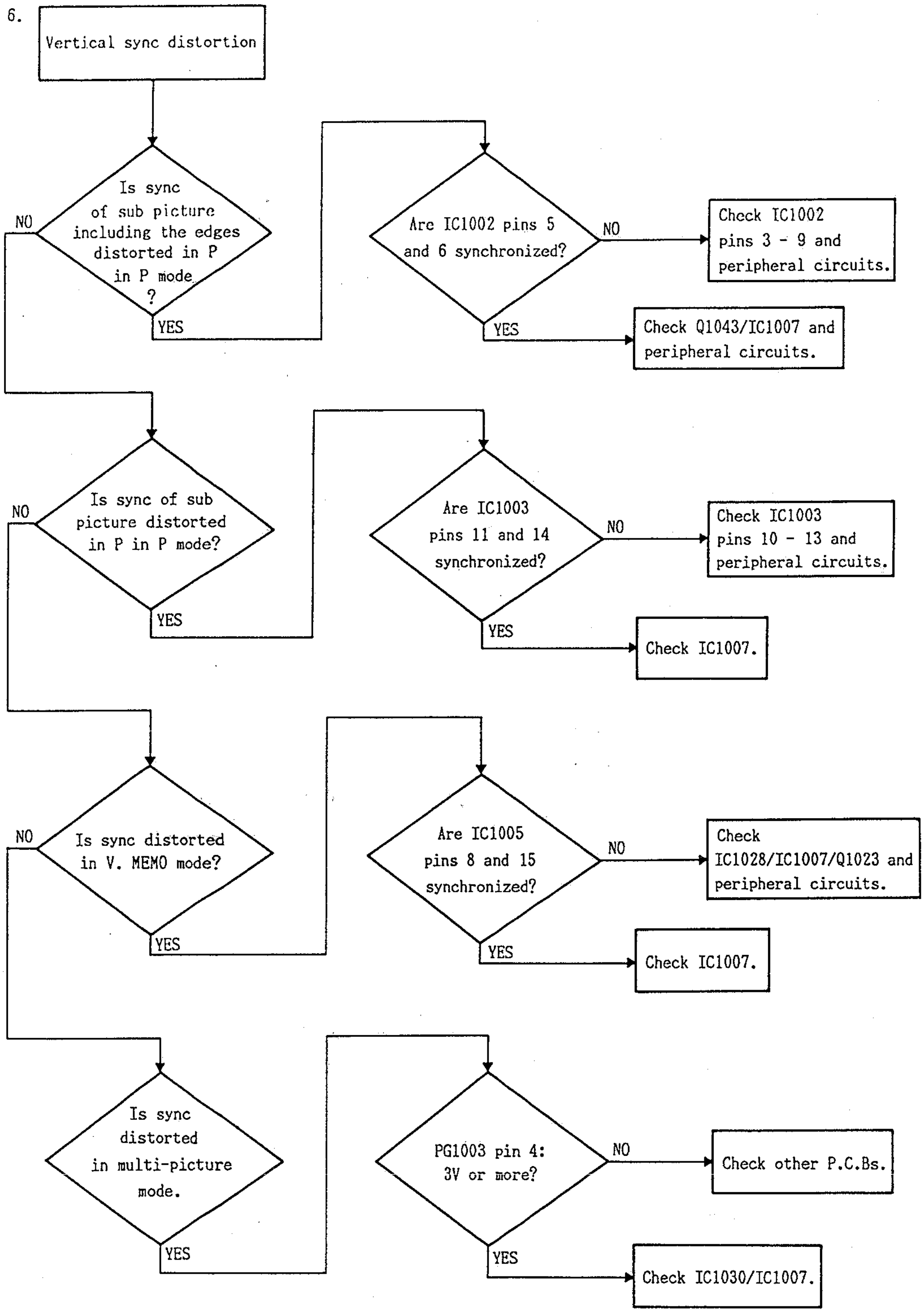
1.


No colour in digital picture
IC1006 pin 5: CHROMA?
NO
Check CP1002/C1083 and peripheral circuits.
YES
IC1006 pin 3: CHROMA?
NO
IC1006 pin 27: Pulse?
NO
Check Q1029/Q1030 and peripheral circuits.
YES
Check IC1006 pins 1/2/29 and peripheral circuits.
Readjust CT1002.
YES
TP1006/TP1007: COLOUR-DIFFERENCE?
NO
Check IC1006/CP1003/CP1004 and peripheral circuits.
YES
IC1012 pin 15: COLOUR-DIFFERENCE?
NO
Check IC1001/IC1012 and peripheral circuits.
YES
IC1026/IC1027 pins 3: COLOUR-DIFFERENCE?
NO
Check IC1018 and peripheral circuits.
Check IC1013 - IC1015 and peripheral circuits.
Check IC1022 - IC1024 and peripheral circuits.
Check IC1007 and peripheral circuits.
YES
IC1005 pins 1/24: COLOUR-DIFFERENCE ?
NO
Check Q1019/Q1020 and peripheral circuits.
YES
IC1005 pins 5/20: fsc CLOCK?
NO
Check IC1004 and peripheral circuits.
Readjust CT1001.
YES
TP11: CHROMA?
NO
Check IC1005 and peripheral circuits.
YES
IC1002 pin 17: CHROMA?
NO
Check C1005/C1008 and peripheral circuits.
YES
IC1002 pin 14: VIDEO?
NO
Check IC1002 and peripheral circuits.
YES
Check IC1003 and peripheral circuits.

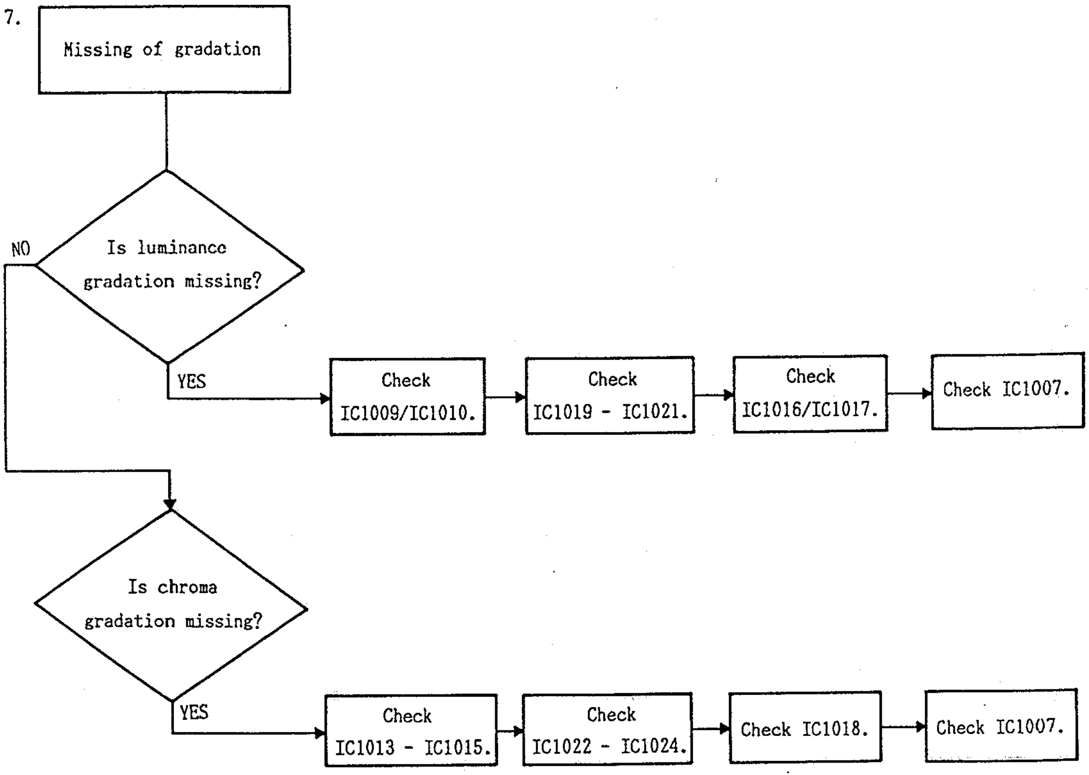
5.


Horizontal sync distortion
Is sync of sub picture including the edges distorted in P in P mode?
NO
YES
Are IC1002 pins 5 and 4 synchronized?
NO
Check IC1002 pins 3 - 13 and peripheral circuits.
YES
Check Q1042/IC1007 and peripheral circuits.
Is sync of sub picture distorted in P in P mode?
NO
YES
Are IC1003 pins 11 and 9 synchronized?
NO
Check IC1003 pins 4 - 14 and peripheral circuits.
YES
Are IC1003 pin 9 and TP4 synchronized?
NO
Check Q1191 - Q1194 and peripheral circuits.
YES
Are IC1007 pin 1 and TP4 synchronized?
NO
Check Q1029/Q1030 and peripheral circuits.
YES
Check IC1007.
Is sync distorted in V. MEMO mode?
NO
YES
Are IC1005 pins 8 and 15 synchronized?
NO
Check IC1028/IC1007/Q1023 and peripheral circuits.
YES
Check IC1007.
Is sync distorted in multi-picture mode?
YES
PG1003 pin 4: 3V or more?
NO
Check other P.C.Bs.
YES
Check IC1030/IC1007.

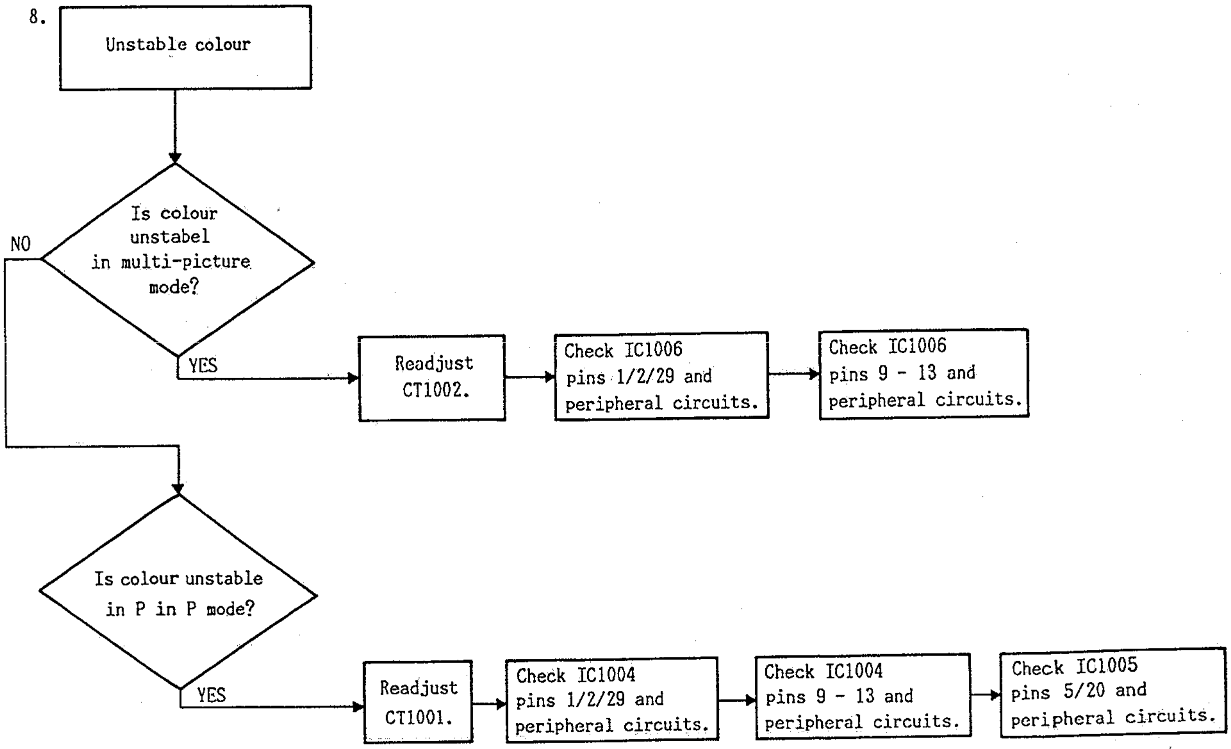
6.


Vertical sync distortion
Is sync of sub picture including the edges distorted in P in P mode ?
NO
YES
Are IC1002 pins 5 and 6 synchronized?
NO
Check IC1002 pins 3 - 9 and peripheral circuits.
YES
Check Q1043/IC1007 and peripheral circuits.
Is sync of sub picture distorted in P in P mode?
NO
YES
Are IC1003 pins 11 and 14 synchronized?
NO
Check IC1003 pins 10 - 13 and peripheral circuits.
YES
Check IC1007.
Is sync distorted in V. MEMO mode?
NO
YES
Are IC1005 pins 8 and 15 synchronized?
NO
Check IC1028/IC1007/Q1023 and peripheral circuits.
YES
Check IC1007.
Is sync distorted in multi-picture mode.
YES
PG1003 pin 4: 3V or more?
NO
Check other P.C.Bs.
YES
Check IC1030/IC1007.

7.


Missing of gradation
Is luminance gradation missing?
NO
YES
Check IC1009/IC1010.
Check IC1019 - IC1021.
Check IC1016/IC1017.
Check IC1007.
Is chroma gradation missing?
YES
Check IC1013 - IC1015.
Check IC1022 - IC1024.
Check IC1018.
Check IC1007.

8.


Unstable colour
Is colour unstabel in multi-picture mode?
NO
YES
Readjust CT1002.
Check IC1006 pins 1/2/29 and peripheral circuits.
Check IC1006 pins 9 - 13 and peripheral circuits.
Is colour unstable in P in P mode?
YES
Readjust CT1001.
Check IC1004 pins 1/2/29 and peripheral circuits.
Check IC1004 pins 9 - 13 and peripheral circuits.
Check IC1005 pins 5/20 and peripheral circuits.

9. Others

P in P mode

Phenomenon	Circuit causing fault	Parts to be checked
Edges and picture drifted	Sub picture output pulse shaper	Q1038-39, R1141-45, C1177-78
Cross colour in edges	Edge chroma level	IC1013-1015
Sub picture flickering	Luminance D/A (IC1025)	R1175, D1007
Sub picture is not black without input	Sub picture AFC (IC1003)	Q1191-93, R1191-93, 96
Colour leaks without input for sub picture	Sub picture decoder (IC1006)	Q1194, R1197
Rise of EE channel switching	Main/sub clamp (IC1003)	R1173-74, C1037, C1123
Rise from memory recall	Main picture muting (IC1030)	R1194-95
Tint drifted at high temperature	Sub picture decoder (IC1006)	Q1012, R1051
Chroma level drifted at high temperature	Sub picture decoder (IC1006)	D1006, R1101
White balance drifted at high temperature	Sub picture encoder (IC1005)	R1026, R1054
Tint not adjustable	Sub picture decoder (IC1006)	R1024-25, C1183-84
Whole sub picture green	D/A (IC1025-27)	IC1025-27 (ICs already changed)

Multi-picture mode

Phenomenon	Circuit causing fault	Parts to be checked
V sync missing in small picture	IF μp (IC1008)	IC1008 (already changed)
Edge positions not aligned	IF μp (IC1008)	IC1008 (already changed)
Vertical white noise	Memory (IC1016-18)	IC1016-18 (ICs already changed)
Colours of 4/16 pictures not matched	Gate array (IC1007)	Q1025, 36, 52, C1175, R1022, 1126-28

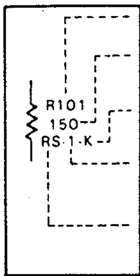
V. MEMO mode

Phenomenon	Circuit causing fault	Parts to be checked
Skew across top of picture	Sub picture AFC (IC1003)	R1032-34, C1010-11
White dot noise at high temperature	Luminance A/D (IC1011)	C1194-95
ID misjudging at high temperature	Decoder (IC1006, 4)	R1081, 1140

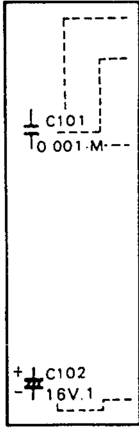
SCHEMATIC/CIRCUIT BOARD DIAGRAM

Note

1 Voltage measured at base of chassis with minimum volume control and no signal
( ) are shown in recording condition
2 Nomenclature of Resistors and Capacitors



Circuit No	
Value	No indicated Ω (Ohm) M · 1000kΩ
Tolerance	No indicated ± 5% K . ± 10% M: ± 20%
Wattage	No indicated ¼ W
Sort	No indicated Carbon film RC Composition RW · Wire wound RS · Oxide metal film RN · Fixed metal film

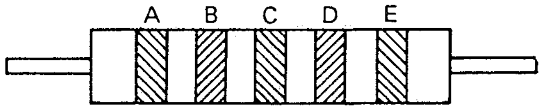


Circuit No.		
Value	No indicated μF P : PF	
Tolerance	No indicated ± 10% J : ± 5% M · ± 20% Z : + 80%, − 20% D : ± 0.5pF C : ± 0.25pF	
Sort	⊥	Ceramic
	+⊥−	Electrolitic
	M⊥	Mylar
	P⊥	Polyester
	S⊥	Styrol
Voltage	No indicated 50WV	

3. Be sure to make your orders of resistors and capacitors with value, voltage, tolerance and sort.
4. When replacing capacitors marked with * use specified ones stated on parts list since required temperature characteristics.

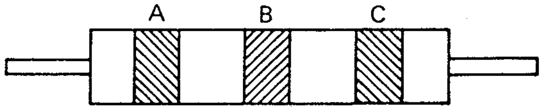
HOW TO READ CAPACITY AND INDUCTANCE OF RESISTOR SHAPE CAPACITORS AND COILS

CAPACITOR



CAPACITY: (10A+B)xC [PF]
TOLERANCE: D
RATED VOLTAGE: BODY COLOUR
Pink: 25V
Green: 50V
CHARACTERISTICS: E

COIL



INDUCTANCE: (10A+B)xC [μH]

COLOUR	A, B	C	D	E
Black	0	10^0	±20%	For temperature compensation
Brown	1	10^1		
Red	2	10^2		
Orange	3	10^3		
Yellow	4	10^4		
Green	5	10^5		
Blue	6			
Violet	7			
Grey	8		±30%	High dielectric constant type
White	9			For temperature compensation
Gold		10^{-1}	± 5%	
Silver		10^{-2}	±10%	High dielectric constant type

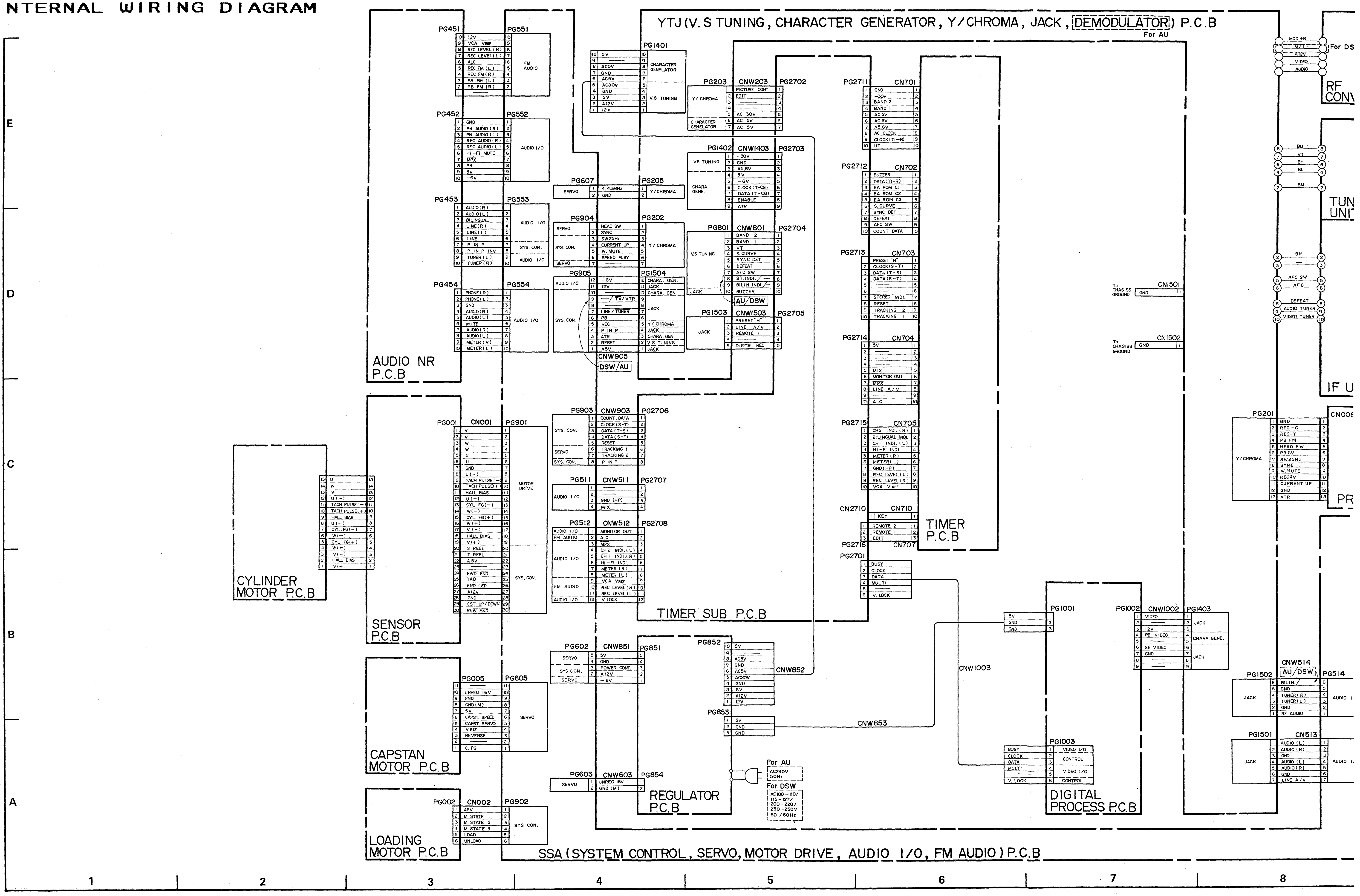
Cautions on use of MOS IC

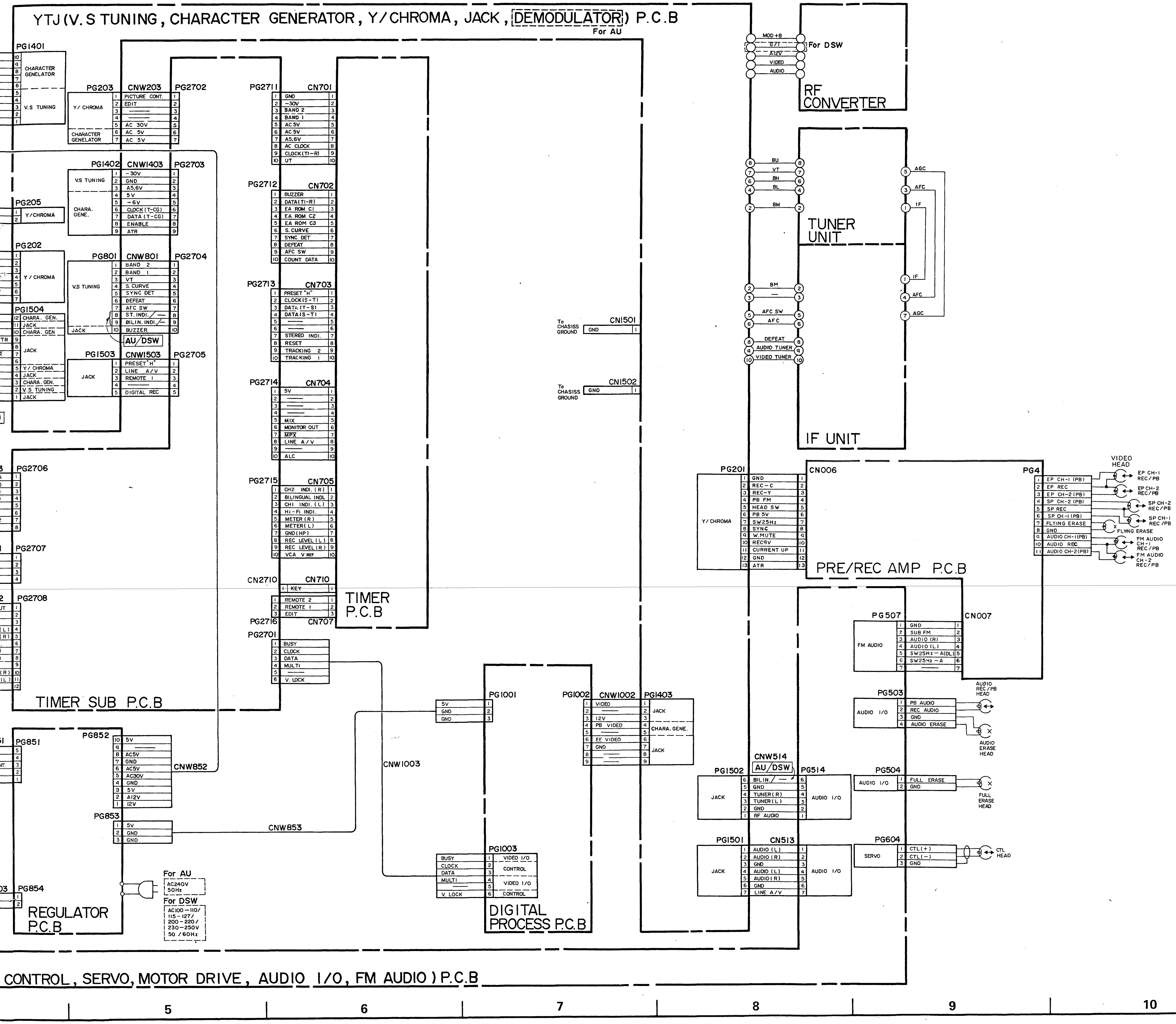
1. The MOS IC is inserted in black foam for shipment. This foam is a conductor which short-circuits between the leads to prevent damage. Do not remove ICs from this foam during their storage. Avoid removing ICs from this foam, placing them on plastic which is likely to be charged with static electricity or inserting them into styrol foam.
2. High voltages may be applied during soldering caused by leakages from the soldering iron, so be sure to ground the tip of the soldering iron or use a low voltage soldering iron.
3. The human body, clothes made of synthetic fibres or nylon gloves may be charged with several thousands volts of static electricity because of friction, so a worker should be grounded.
4. Be sure to ground measuring instruments such as oscilloscopes, VTVMs, etc. used for repairs.

ABBREVIATIONS OF DIGITAL PROCESS CIRCUIT

ADC B-Y	Analog to Digital Converted B-Y Signal
ADC R-Y	Analog to Digital Converted R-Y Signal
ADC Y	Analog to Digital Converted Luminance Signal
ADRS	Address
CAS	Column Address Strobe
C. BLANK	Chroma Blanking
DRAM	Dynamic Random Access Memory
DEMPX	Demultiplexer
DWC	Delayed Write Clock
DT/OE	Date Transfer/Output Enable
D. REF25	Delayed Reference 25Hz
D. SW25	Delayed Switching 25Hz
INC	Row Counter Increment
MEM	Memory
MEM VIDEO	Memorized Video
MEM SW	Memory Switch
MEM ON	Memory ON
MPX	Multiplexer
MPX VIDEO	Multiplexed Video
O/E	Odd/Even Field
P IN P	Picture in Picture
PIX MOVE	Picture Move
RC	Reading Clock
RCC	Reading Clock Clear
RCR	Row Counter Reset
RAS	Row Address Strobe
REF25	Reference 25Hz from servo circuit
RFL	Refresh Control
SC	Serial Control
WC	Write Clock
WCC	Write Clock Clear
WE	Write Enable
WRITE ENBL	Write Enable

INTERNAL WIRING DIAGRAM


YTJ (V.S TUNING, CHARACTER GENERATOR, Y/CHROMA, JACK, DEMODULATOR) P.C.B
For AU
AUDIO NR P.C.B
CYLINDER MOTOR P.C.B
SENSOR P.C.B
CAPSTAN MOTOR P.C.B
LOADING MOTOR P.C.B
TIMER SUB P.C.B
TIMER P.C.B
REGULATOR P.C.B
DIGITAL PROCESS P.C.B
SSA (SYSTEM CONTROL, SERVO, MOTOR DRIVE, AUDIO I/O, FM AUDIO) P.C.B
RF CONV
TUN UNI
IF U
PR
For DS
PG451
PG551
PG452
PG552
PG453
PG553
PG454
PG554
PG001
CN001
PG901
PG005
PG605
PG002
CN002
PG902
PG1401
PG607
PG205
PG904
PG202
PG905
PG1504
CNW905
DSW/AU
PG203
CNW203
PG2702
PG1402
CNW1403
PG2703
PG801
CNW801
PG2704
AU/DSW
PG1503
CNW1503
PG2705
PG903
CNW903
PG2706
PG511
CNW511
PG2707
PG512
CNW512
PG2708
PG602
CNW851
PG851
PG852
CNW852
PG853
CNW853
PG603
CNW603
PG854
PG2711
CN701
PG2712
CN702
PG2713
CN703
PG2714
CN704
PG2715
CN705
CN2710
CN710
PG2716
CN707
PG2701
CNW1003
PG1001
PG1002
CNW1002
PG1403
PG1003
CN1501
CN1502
To CHASISS GROUND
PG201
CN006
CNW514
PG1502
PG514
PG1501
CN513
FM AUDIO
AUDIO I/O
SYS. CON.
MOTOR DRIVE
SERVO
Y/CHROMA
CHARACTER GENELATOR
V.S TUNING
JACK
CHARA. GENE.
CONTROL
VIDEO I/O
For AU
AC240V 50Hz
For DSW
AC100-110/115-127/200-220/230-250V 50/60Hz
E
D
C
B
A
1
2
3
4
5
6
7
8


YTJ (V.S TUNING, CHARACTER GENERATOR, Y/CHROMA, JACK, DEMODULATOR) P.C.B
For AU
TIMER SUB P.C.B
TIMER P.C.B
REGULATOR P.C.B
DIGITAL PROCESS P.C.B
PRE/REC AMP P.C.B
RF CONVERTER
For DSW
TUNER UNIT
IF UNIT
CONTROL, SERVO, MOTOR DRIVE, AUDIO I/O, FM AUDIO) P.C.B
VIDEO HEAD
AUDIO REC/PB HEAD
AUDIO ERASE HEAD
FULL ERASE HEAD
CTL HEAD
For AU
AC240V 50Hz
For DSW
AC100-110/115-127/200-220/230-250V 50/60Hz
To CHASISS GROUND
CN1501
CN1502
5
6
7
8
9
10
11

SCHEMATIC DIAGRAM	PAGE
TUNER UNIT	5-6
IF UNIT	5-8
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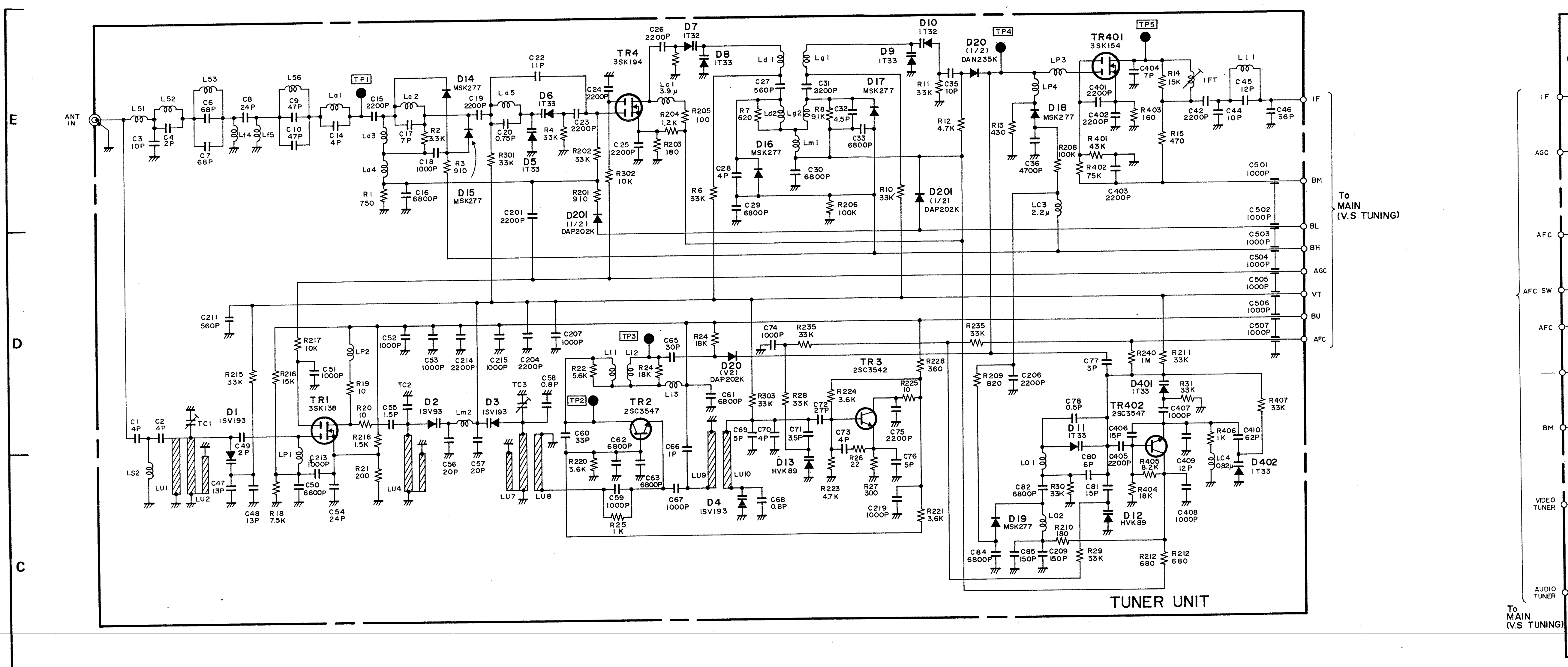
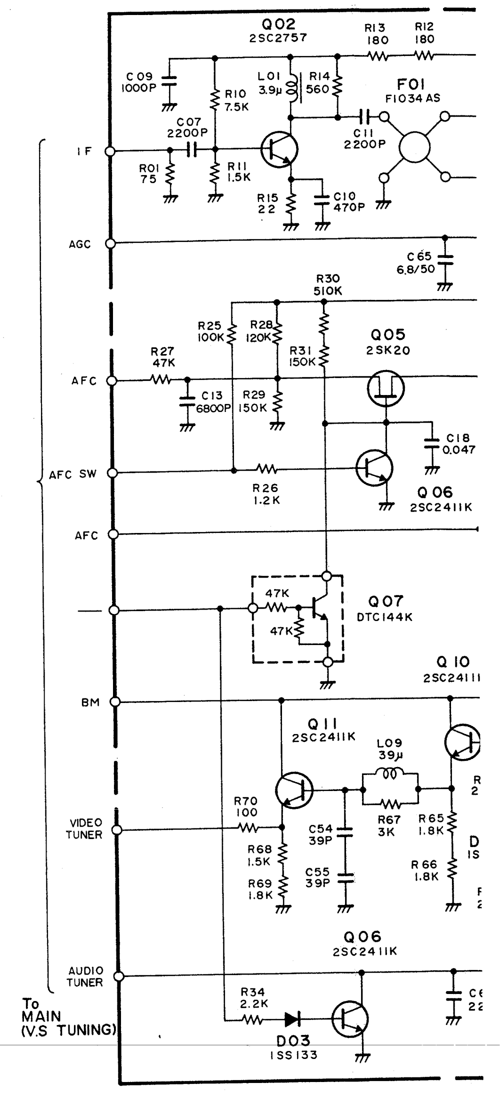
TIMER	5-12
Y/CHROMA	5-18
PRE/REC AMP	5-21
VS TUNING	5-22
DEMODULATOR	5-23
CHARACTER GENERATOR	5-25
JACK	5-27
AUDIO I/O	5-32
AUDIO NR	5-35
FM AUDIO	5-38
MOTOR DRIVE	5-39
SERVO	5-41
SYS. CON.	5-44
VIDEO I/O PROCESS	5-50
ENCODE/DECODE/MEMORY	5-53
CONTROL	5-56
REGULATOR	5-62
RF CONVERTER (AU)	5-65
RF CONVERTER (DSW)	5-66


ANT IN
L51
L52
C3 10P
C4 2P
L53
C6 68P
C7 68P
C8 24P
Lf4
Lf5
L56
C9 47P
C10 47P
La1
C14 4P
TP1
C15 2200P
La2
La3
La4
C17 7P
R2 33K
C18 1000P
R3 910
R1 750
C16 6800P
D14 MSK277
D15 MSK277
C19 2200P
C22 11P
La5
D6 1T33
C20 0.75P
D5 1T33
R4 33K
R301 33K
C23 2200P
R202 33K
C24 2200P
C201 2200P
R201 910
D201 (1/2) DAP202K
TR4 3SK194
C25 2200P
R302 10K
C26 2200P
D7 1T32
D8 1T33
Lc1 3.9μ
R204 1.2K
R203 180
R205 100
Ld1
C27 560P
R7 620
Ld2
Lg2
D16 MSK277
C28 4P
C29 6800P
R6 33K
Lg1
C31 2200P
R8 9.1K
C32 4.5P
Lm1
C30 6800P
C33 6800P
D9 1T33
D17 MSK277
R206 100K
R10 33K
D10 1T32
R11 33K
C35 10P
R12 4.7K
D201 (1/2) DAP202K
D20 (1/2) DAN235K
TP4
LP3
LP4
D18 MSK277
R13 430
C36 4700P
LC3 2.2μ
R208 100K
TR401 3SK154
TP5
C404 7P
C401 2200P
C402 2200P
R401 43K
R402 75K
R403 160
C403 2200P
R14 15K
IFT
R15 470
L11
C45 12P
C42 2200P
C44 10P
C46 36P
IF
C501 1000P
BM
C502 1000P
BL
C503 1000P
BH
C504 1000P
AGC
C505 1000P
VT
C506 1000P
BU
C507 1000P
AFC
To MAIN (V.S TUNING)
C211 560P
R215 33K
R216 15K
R217 10K
C51 1000P
LP2
R19 10
TR1 3SK138
C52 1000P
C53 1000P
C214 2200P
C215 1000P
C204 2200P
C207 1000P
C58 0.8P
TC2
TC3
R20 10
R218 1.5K
R21 200
C55 1.5P
D2 1SV193
Lm2
D3 1SV193
C56 20P
C57 20P
C1 4P
C2 4P
TC1
D1 1SV193
C49 2P
C47 13P
LS2
LU1
LU2
LP1
C213 1000P
C50 6800P
C48 13P
R18 7.5K
C54 24P
LU4
LU7
LU8
TP3
C65 30P
L11
L12
R22 5.6K
R24 18K
Li3
TP2
TR2 2SC3547
C60 33P
C62 6800P
R220 3.6K
C63 6800P
C59 1000P
R25 1K
C66 1P
C67 1000P
R24 18K
D20 (1/2) DAP202K
C61 6800P
LU9
LU10
D4 1SV193
C69 5P
C70 4P
C68 0.8P
C74 1000P
R235 33K
R303 33K
R28 33K
C71 35P
D13 HVK89
C72 27P
R224 3.6K
TR3 2SC3542
C73 4P
R26 22
R223 4.7K
R27 300
R225 10
C75 2200P
C76 5P
C219 1000P
R228 360
R221 3.6K
R235 33K
R209 820
C206 2200P
C77 3P
R240 1M
R211 33K
D401 1T33
R31 33K
TR402 2SC3547
C78 0.5P
D11 1T33
C406 15P
C407 1000P
R406 1K
C410 62P
R407 33K
LO1
C80 6P
C405 2200P
R405 8.2K
C409 12P
LC4 0.82μ
D402 1T33
C82 6800P
R30 33K
C81 15P
R404 18K
C408 1000P
D19 MSK277
LO2
R210 180
D12 HVK89
C84 6800P
C85 150P
C209 150P
R29 33K
R212 680
R212 680
TUNER UNIT
E
D
C


Q02 2SC2757
R13 180
R12 180
C09 1000P
R10 7.5K
L01 3.9μ
R14 560
F01 F1034AS
C07 2200P
C11 2200P
IF
R01 75
R11 1.5K
R15 22
C10 470P
AGC
C65 6.8/50
R30 510K
R25 100K
R28 120K
R27 47K
R31 150K
Q05 2SK20
AFC
C13 6800P
R29 150K
C18 0.047
AFC SW
R26 1.2K
Q06 2SC2411K
AFC
Q07 DTC144K
47K
47K
BM
Q10 2SC2411
Q11 2SC2411K
L09 39μ
R70 100
VIDEO TUNER
C54 39P
R67 3K
R65 1.8K
R68 1.5K
R69 1.8K
C55 39P
R66 1.8K
Q06 2SC2411K
AUDIO TUNER
R34 2.2K
D03 1SS133
To MAIN (V.S TUNING)

SCHEMATIC DIAGRAM	PAGE
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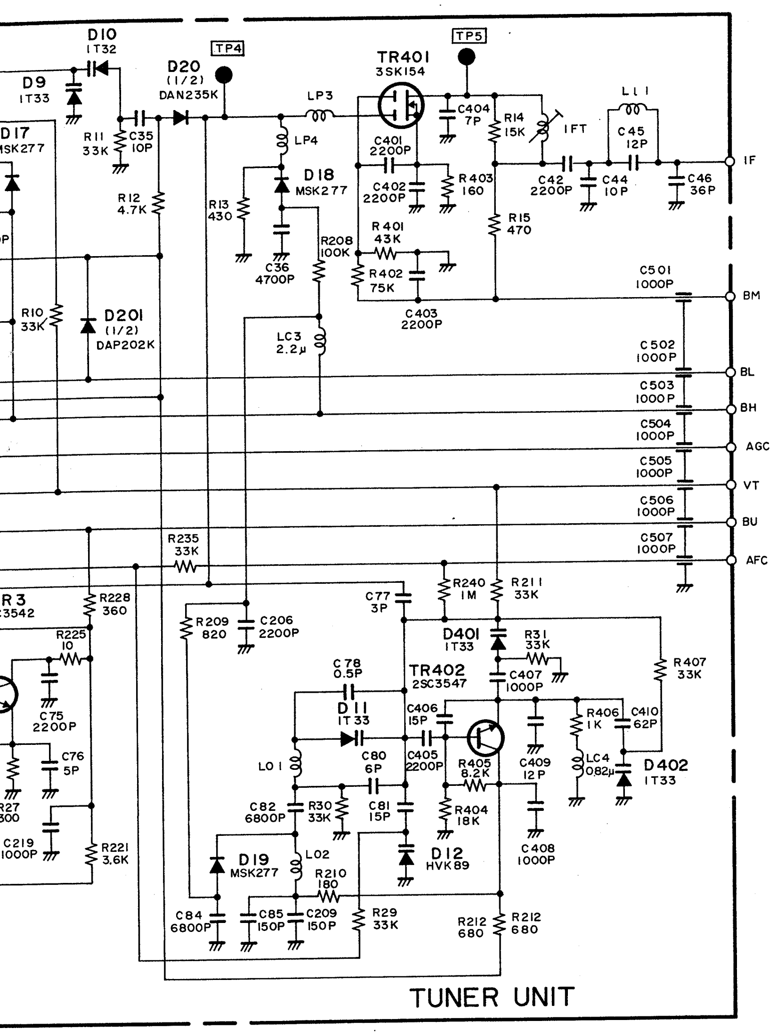
B

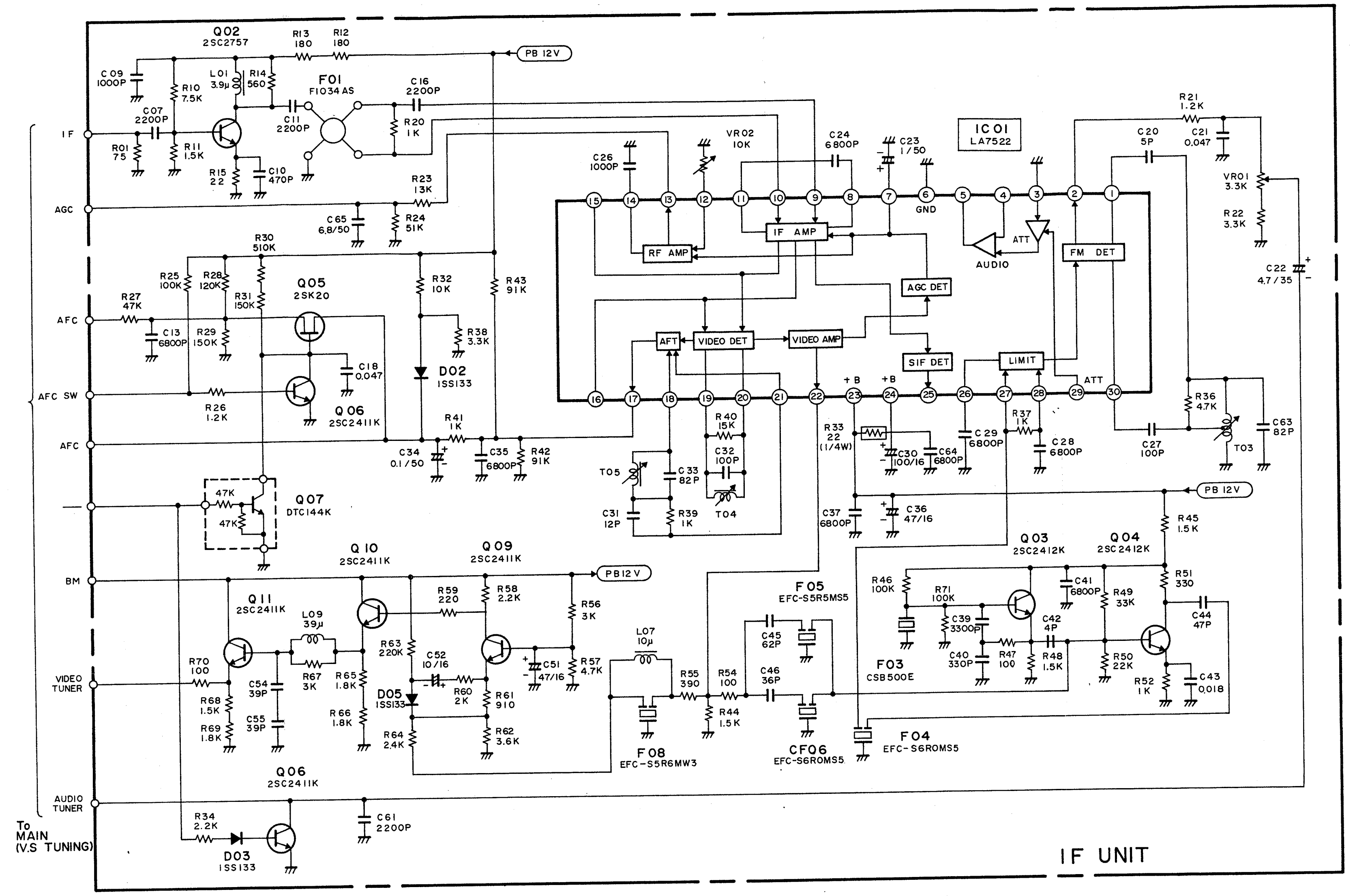
A

1 2 3 4 5 6 7 8

IF UNIT



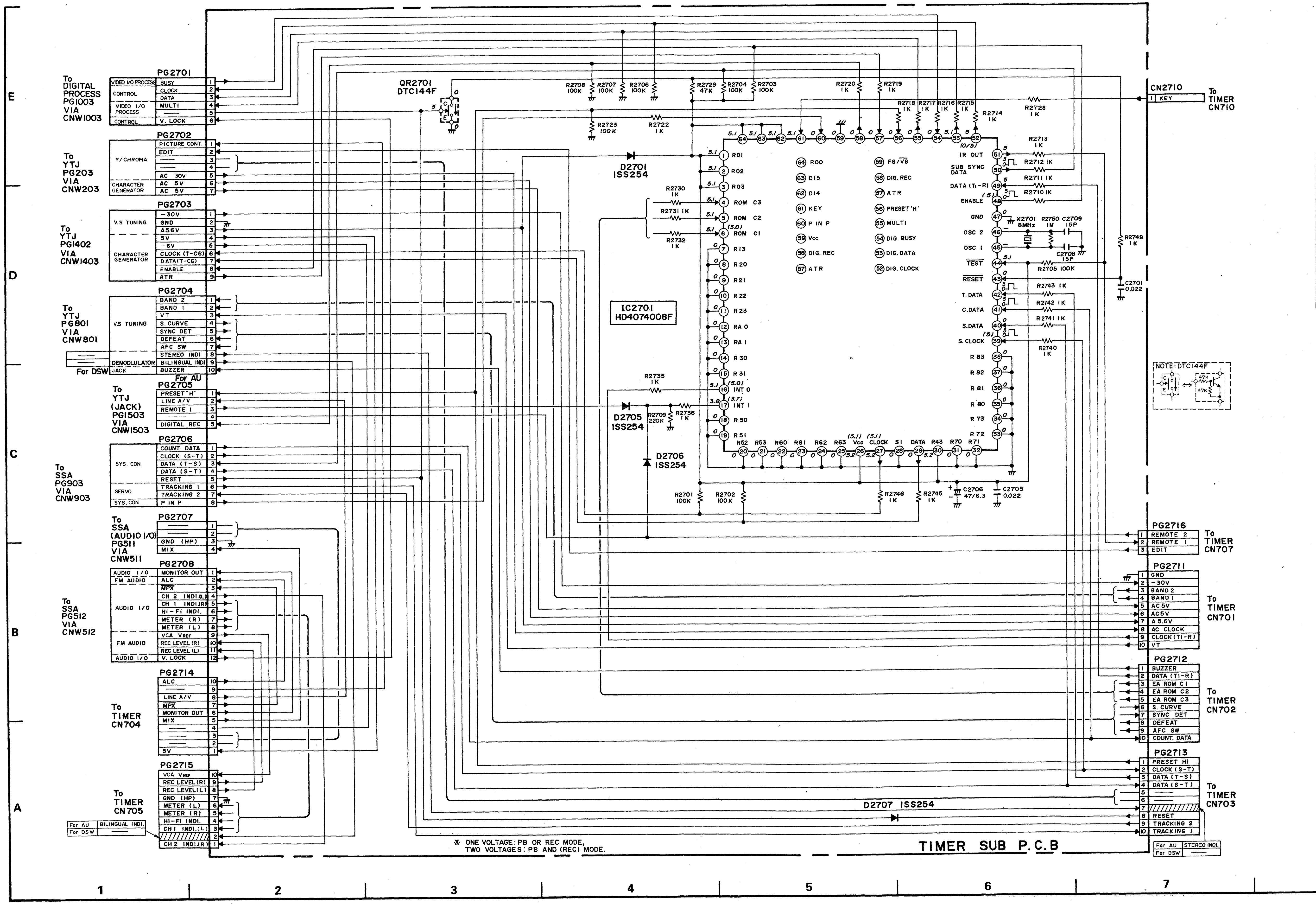
D10
1T32
D9
1T33
D17
MSK277
D20
(1/2)
DAN235K
TP4
LP3
LP4
TR401
3SK154
TP5
C404
7P
R14
15K
IFT
LL1
C45
12P
IF
R11
33K
C35
10P
R12
4.7K
R13
430
D18
MSK277
C401
2200P
C402
2200P
R403
160
C42
2200P
C44
10P
C46
36P
R15
470
C36
4700P
R208
100K
R401
43K
R402
75K
C403
2200P
C501
1000P
BM
R10
33K
D201
(1/2)
DAP202K
LC3
2.2μ
C502
1000P
To
MAIN
(V.S TUNING)
C503
1000P
BL
C504
1000P
BH
C505
1000P
AGC
C506
1000P
VT
C507
1000P
BU
AFC
R235
33K
R3
3542
R228
360
R225
10
R209
820
C206
2200P
C77
3P
R240
1M
R211
33K
D401
1T33
R31
33K
C407
1000P
R407
33K
C78
0.5P
TR402
2SC3547
D11
1T33
C406
15P
R406
1K
C410
62P
C75
2200P
C76
5P
LO1
C80
6P
C405
2200P
R405
8.2K
C409
12P
LC4
0.82μ
D402
1T33
C82
6800P
R30
33K
C81
15P
R404
18K
D19
MSK277
LO2
R210
180
D12
HVK89
C408
1000P
C219
1000P
R221
3.6K
C84
6800P
C85
150P
C209
150P
R29
33K
R212
680
R212
680
TUNER UNIT



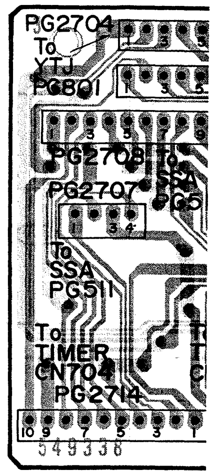
Q02
2SC2757
R13
180
R12
180
PB 12V
C09
1000P
R10
7.5K
LO1
3.9μ
R14
560
F01
F1034AS
C16
2200P
C07
2200P
C11
2200P
R20
1K
IF
R01
75
R11
1.5K
R15
22
C10
470P
R23
13K
AGC
C65
6.8/50
R24
51K
R30
510K
R25
100K
R28
120K
Q05
2SK20
R32
10K
R43
91K
R27
47K
R31
150K
AFC
C13
6800P
R29
150K
R38
3.3K
C18
0.047
D02
1SS133
AFC SW
R26
1.2K
Q06
2SC2411K
R41
1K
AFC
C34
0.1/50
C35
6800P
R42
91K
Q07
DTC144K
47K
47K
BM
Q10
2SC2411K
Q09
2SC2411K
PB12V
Q11
2SC2411K
R59
220
R58
2.2K
R56
3K
L09
39μ
R63
220K
C52
10/16
L07
10μ
VIDEO
TUNER
R70
100
C54
39P
R67
3K
R65
1.8K
D05
1SS133
R60
2K
C51
47/16
R57
4.7K
R55
390
R54
100
R68
1.5K
C55
39P
R66
1.8K
R61
910
R44
1.5K
R69
1.8K
R64
2.4K
R62
3.6K
F08
EFC-S5R6MW3
Q06
2SC2411K
AUDIO
TUNER
C61
2200P
R34
2.2K
To
MAIN
(V.S TUNING)
D03
1SS133
C26
1000P
VR02
10K
C24
6800P
C23
1/50
IC01
LA7522
GND
RF AMP
IF AMP
AUDIO
ATT
FM DET
AGC DET
AFT
VIDEO DET
VIDEO AMP
SIF DET
LIMIT
ATT
+B
+B
R40
15K
C32
100P
T05
C33
82P
C31
12P
R39
1K
T04
R33
22
(1/4W)
C30
100/16
C64
6800P
C29
6800P
R37
1K
C28
6800P
C37
6800P
C36
47/16
R21
1.2K
C20
5P
C21
0.047
VR01
3.3K
R22
3.3K
C22
4.7/35
R36
4.7K
C27
100P
C63
82P
T03
PB 12V
R45
1.5K
Q03
2SC2412K
Q04
2SC2412K
F05
EFC-S5R5MS5
R46
100K
R71
100K
C41
6800P
R49
33K
R51
330
C39
3300P
C42
4P
C44
47P
C45
62P
F03
CSB500E
C40
330P
R47
100
R48
1.5K
R50
22K
C46
36P
R52
1K
C43
0.018
CF06
EFC-S6R0MS5
F04
EFC-S6R0MS5
IF UNIT

5 6 7 8 9 10 11 12

TIMER SUB

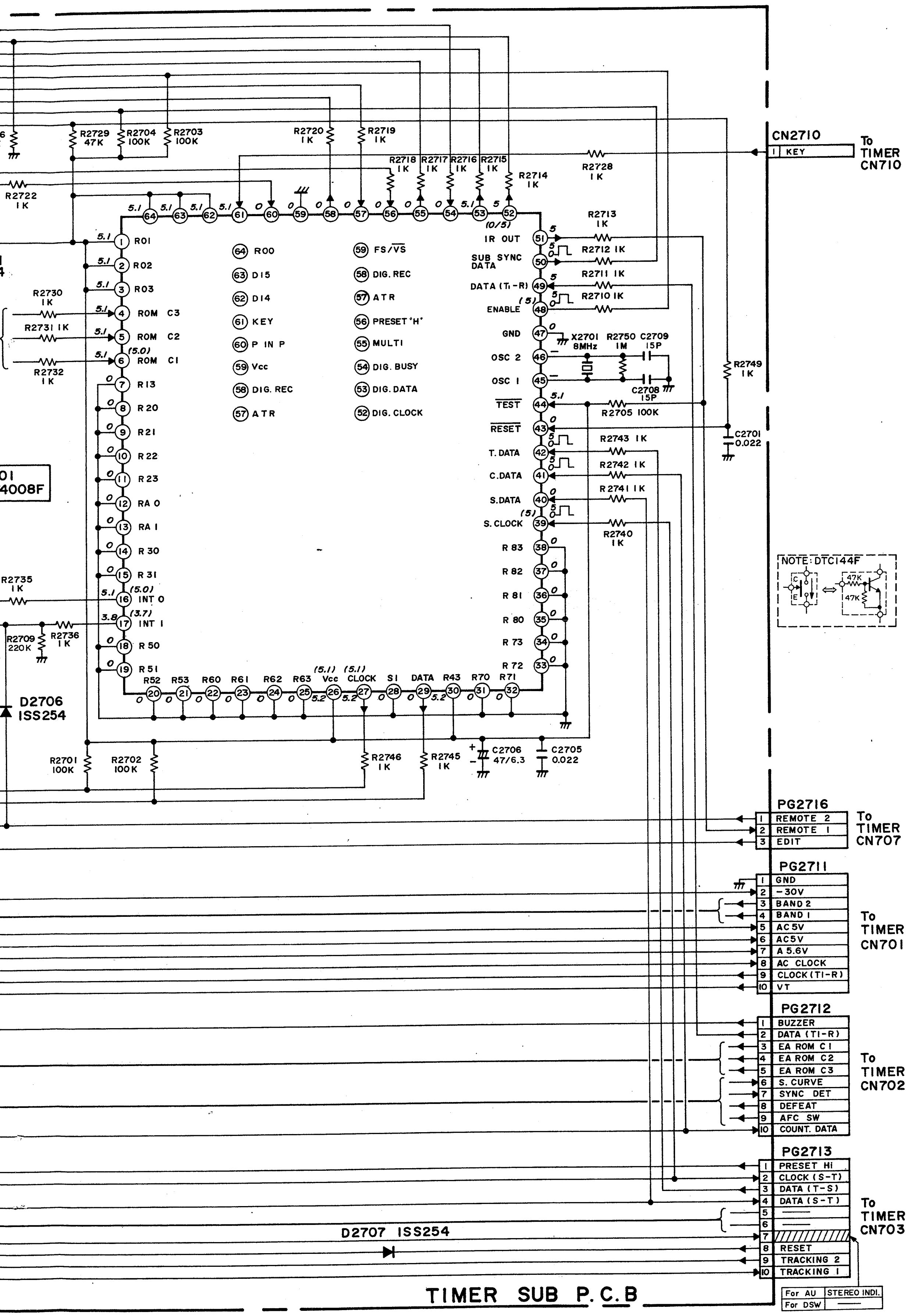


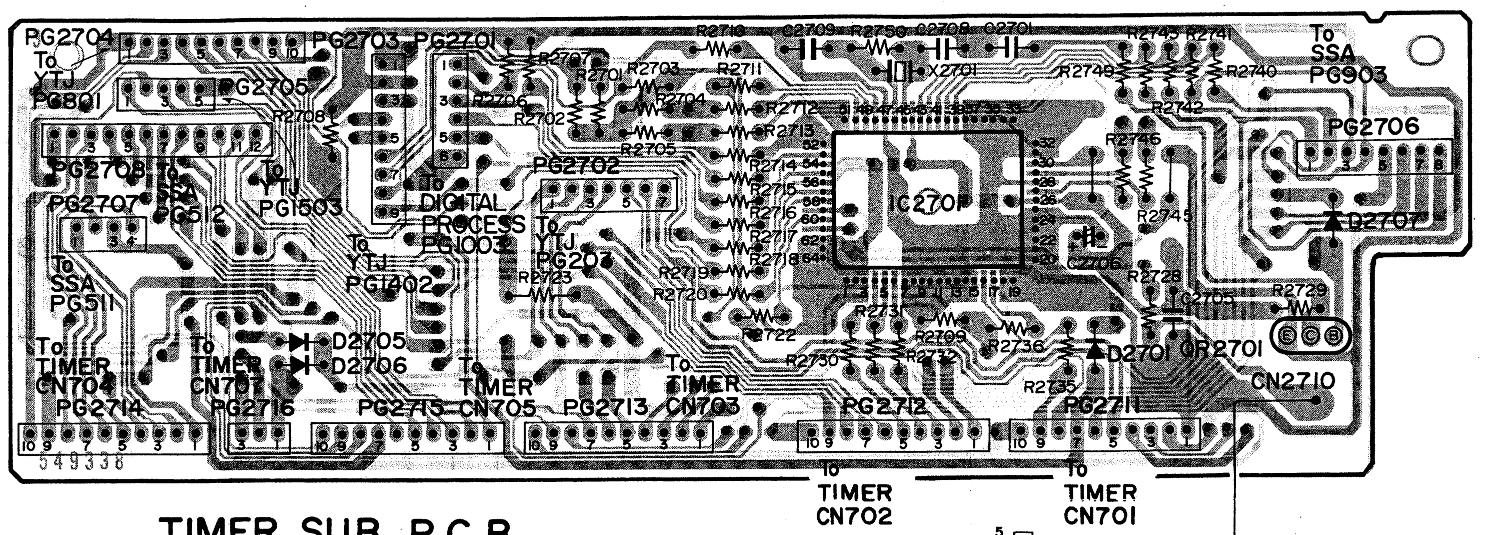
To DIGITAL PROCESS PG1003 VIA CNW1003
PG2701
VIDEO I/O PROCESS
CONTROL
VIDEO I/O PROCESS
CONTROL
BUSY
CLOCK
DATA
MULTI
V. LOCK
To YTJ PG203 VIA CNW203
PG2702
Y/CHROMA
CHARACTER GENERATOR
PICTURE CONT.
EDIT
AC 30V
AC 5V
AC 5V
To YTJ PG1402 VIA CNW1403
PG2703
V.S TUNING
CHARACTER GENERATOR
-30V
GND
A5.6V
5V
-6V
CLOCK (T-CG)
DATA (T-CG)
ENABLE
ATR
To YTJ PG801 VIA CNW801
PG2704
V.S TUNING
DEMODULATOR
JACK
BAND 2
BAND 1
VT
S. CURVE
SYNC DET
DEFEAT
AFC SW
STEREO INDI
BILINGUAL INDI
BUZZER
For DSW
For AU
To YTJ (JACK) PG1503 VIA CNW1503
PG2705
PRESET "H"
LINE A/V
REMOTE 1
DIGITAL REC
To SSA PG903 VIA CNW903
PG2706
SYS. CON.
SERVO
SYS. CON.
COUNT. DATA
CLOCK (S-T)
DATA (T-S)
DATA (S-T)
RESET
TRACKING 1
TRACKING 2
P IN P
To SSA (AUDIO I/O) PG511 VIA CNW511
PG2707
GND (HP)
MIX
To SSA PG512 VIA CNW512
PG2708
AUDIO I/O
FM AUDIO
AUDIO I/O
FM AUDIO
AUDIO I/O
MONITOR OUT
ALC
MPX
CH 2 INDI(L)
CH 1 INDI(R)
HI-FI INDI.
METER (R)
METER (L)
VCA VREF
REC LEVEL (R)
REC LEVEL (L)
V. LOCK
To TIMER CN704
PG2714
ALC
LINE A/V
MPX
MONITOR OUT
MIX
5V
To TIMER CN705
PG2715
VCA VREF
REC LEVEL (R)
REC LEVEL (L)
GND (HP)
METER (L)
METER (R)
HI-FI INDI.
CH1 INDI.(L)
CH2 INDI.(R)
For AU BILINGUAL INDI.
For DSW
QR2701 DTC144F
R2708 100K
R2707 100K
R2706 100K
R2729 47K
R2704 100K
R2703 100K
R2720 1K
R2719 1K
R2718 1K
R2717 1K
R2716 1K
R2715 1K
R2714 1K
R2728 1K
R2723 100K
R2722 1K
D2701 1SS254
R2713 1K
R2712 1K
R2711 1K
R2710 1K
R2730 1K
R2731 1K
R2732 1K
X2701 8MHz
R2750 1M
C2709 15P
C2708 15P
R2705 100K
R2749 1K
C2701 0.022
R2743 1K
R2742 1K
R2741 1K
R2740 1K
IC2701 HD4074008F
R2735 1K
D2705 1SS254
R2709 220K
R2736 1K
D2706 1SS254
R2701 100K
R2702 100K
R2746 1K
R2745 1K
C2706 47/6.3
C2705 0.022
R01
R02
R03
ROM C3
ROM C2
ROM C1
R13
R20
R21
R22
R23
RA0
RA1
R30
R31
INT 0
INT 1
R50
R51
R52
R53
R60
R61
R62
R63
Vcc
CLOCK
S1
DATA
R43
R70
R71
R72
R73
R80
R81
R82
R83
S. CLOCK
S.DATA
C.DATA
T. DATA
RESET
TEST
OSC 1
OSC 2
GND
ENABLE
DATA (TI-R)
SUB SYNC DATA
IR OUT
(64) R00
(63) D15
(62) D14
(61) KEY
(60) P IN P
(59) Vcc
(58) DIG. REC
(57) ATR
(59) FS/VS
(58) DIG. REC
(57) ATR
(56) PRESET "H"
(55) MULTI
(54) DIG. BUSY
(53) DIG. DATA
(52) DIG. CLOCK
CN2710
KEY
To TIMER CN710
NOTE: DTC144F
47K
47K
PG2716
REMOTE 2
REMOTE 1
EDIT
To TIMER CN707
PG2711
GND
-30V
BAND 2
BAND 1
AC 5V
AC5V
A 5.6V
AC CLOCK
CLOCK (TI-R)
VT
To TIMER CN701
PG2712
BUZZER
DATA (TI-R)
EA ROM C1
EA ROM C2
EA ROM C3
S. CURVE
SYNC DET
DEFEAT
AFC SW
COUNT. DATA
To TIMER CN702
PG2713
PRESET HI
CLOCK (S-T)
DATA (T-S)
DATA (S-T)
RESET
TRACKING 2
TRACKING 1
To TIMER CN703
For AU STEREO INDI.
For DSW
D2707 1SS254
※ ONE VOLTAGE: PB OR REC MODE,
TWO VOLTAGES: PB AND (REC) MODE.
TIMER SUB P.C.B
E
D
C
B
A
1
2
3
4
5
6
7
8



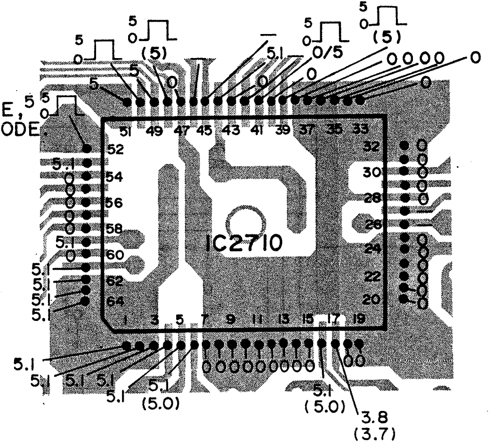
PG2704
To YTJ PG801
PG2708
PG2707
To SSA PG511
To TIMER CN704
PG2714

TI


CN2710
1 KEY
To TIMER CN710
R2729 47K
R2704 100K
R2703 100K
R2720 1K
R2719 1K
R2718 1K
R2717 1K
R2716 1K
R2715 1K
R2714 1K
R2728 1K
R2722 1K
R2713 1K
R2712 1K
R2711 1K
R2710 1K
R2730 1K
R2731 1K
R2732 1K
R2735 1K
R2709 220K
R2736 1K
R2749 1K
R2705 100K
R2743 1K
R2742 1K
R2741 1K
R2740 1K
X2701 8MHz
R2750 1M
C2709 15P
C2708 15P
C2701 0.022
R2701 100K
R2702 100K
R2746 1K
R2745 1K
C2706 47/6.3
C2705 0.022
D2706 ISS254
D2707 ISS254
4008F
R00
R02
R03
ROM C3
ROM C2
ROM C1
R13
R20
R21
R22
R23
RA 0
RA 1
R30
R31
INT 0
INT 1
R50
R51
R52
R53
R60
R61
R62
R63
Vcc
CLOCK
SI
DATA
R43
R70
R71
R72
R73
R80
R81
R82
R83
S. CLOCK
S.DATA
C.DATA
T. DATA
RESET
TEST
OSC 1
OSC 2
GND
ENABLE
DATA (TI-R)
SUB SYNC DATA
IR OUT
(64) R00
(63) D15
(62) D14
(61) KEY
(60) P IN P
(59) Vcc
(58) DIG. REC
(57) ATR
(59) FS/VS
(58) DIG. REC
(57) ATR
(56) PRESET 'H'
(55) MULTI
(54) DIG. BUSY
(53) DIG. DATA
(52) DIG. CLOCK
NOTE: DTC144F
47K
47K
PG2716
1 REMOTE 2
2 REMOTE 1
3 EDIT
To TIMER CN707
PG2711
1 GND
2 -30V
3 BAND 2
4 BAND 1
5 AC 5V
6 AC 5V
7 A 5.6V
8 AC CLOCK
9 CLOCK (TI-R)
10 VT
To TIMER CN701
PG2712
1 BUZZER
2 DATA (TI-R)
3 EA ROM C1
4 EA ROM C2
5 EA ROM C3
6 S. CURVE
7 SYNC DET
8 DEFEAT
9 AFC SW
10 COUNT. DATA
To TIMER CN702
PG2713
1 PRESET HI
2 CLOCK (S-T)
3 DATA (T-S)
4 DATA (S-T)
5 ——
6 ——
7
8 RESET
9 TRACKING 2
10 TRACKING 1
To TIMER CN703
For AU STEREO INDI.
For DSW ——
TIMER SUB P.C.B


PG2704
To YTJ PG801
PG2703
PG2701
PG2705
PG2708
PG2707
To SSA PG512
To YTJ PG1503
To DIGITAL PROCESS PG1003
To YTJ PG203
To YTJ PG1402
To SSA PG511
PG2702
IC2701
To SSA PG903
PG2706
D2707
D2705
D2706
D2701
R2701
To TIMER CN704
To TIMER CN707
To TIMER CN705
To TIMER CN703
PG2714
PG2716
PG2715
PG2713
PG2712
PG2711
CN2710
X2701
To TIMER CN702
To TIMER CN701
549338
CN2710
To TIMER CN710

TIMER SUB P.C.B


IC2710
5.1
(5)
0/5
(5.0)
3.8
(3.7)

※ ONE VOLTAGE PB OR REC MODE,
TWO VOLTAGES PB AND(REC) MODE

Component Side
Solder Side
Through Hole

SCHEMATIC DIAGRAM	PAGE
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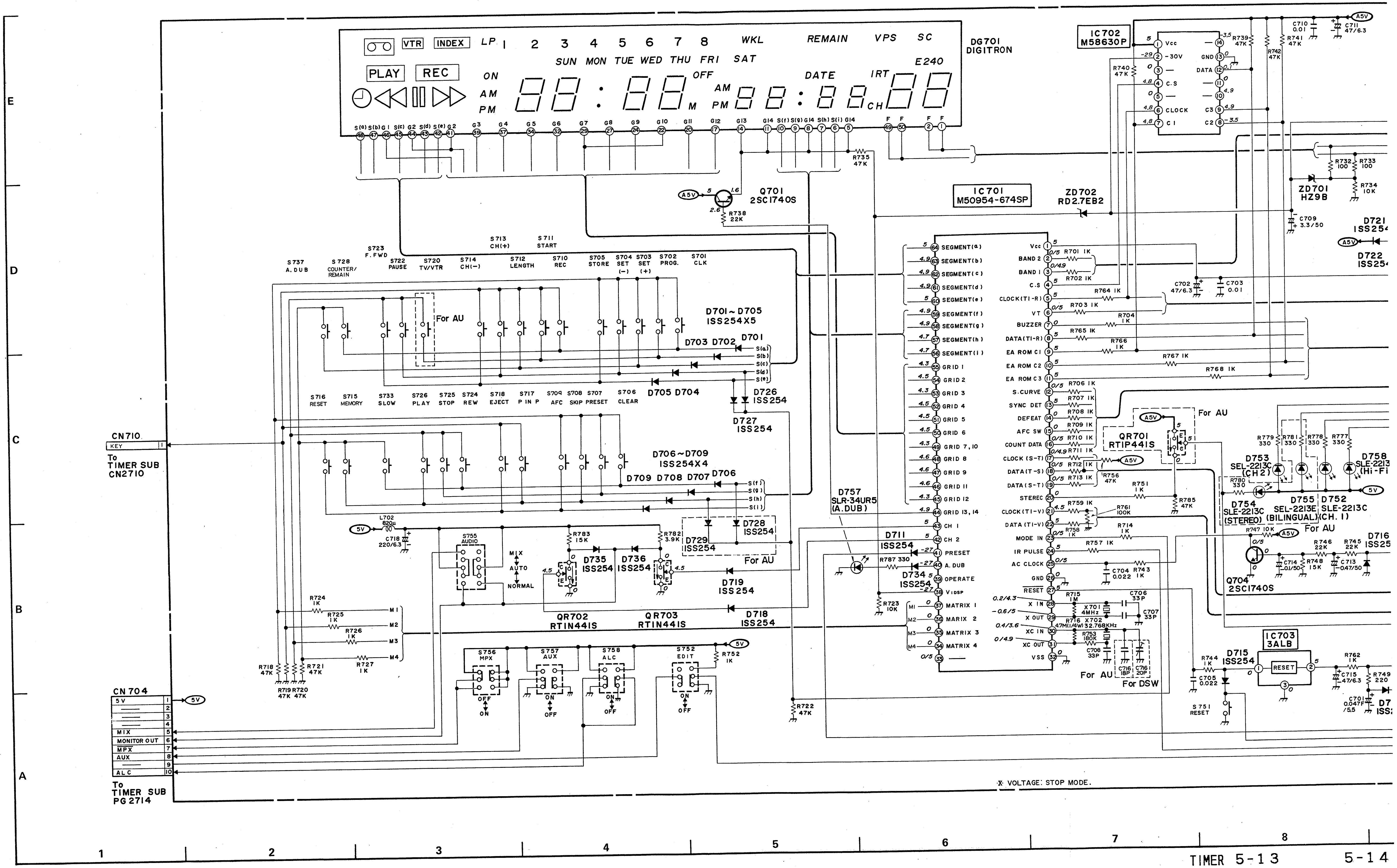
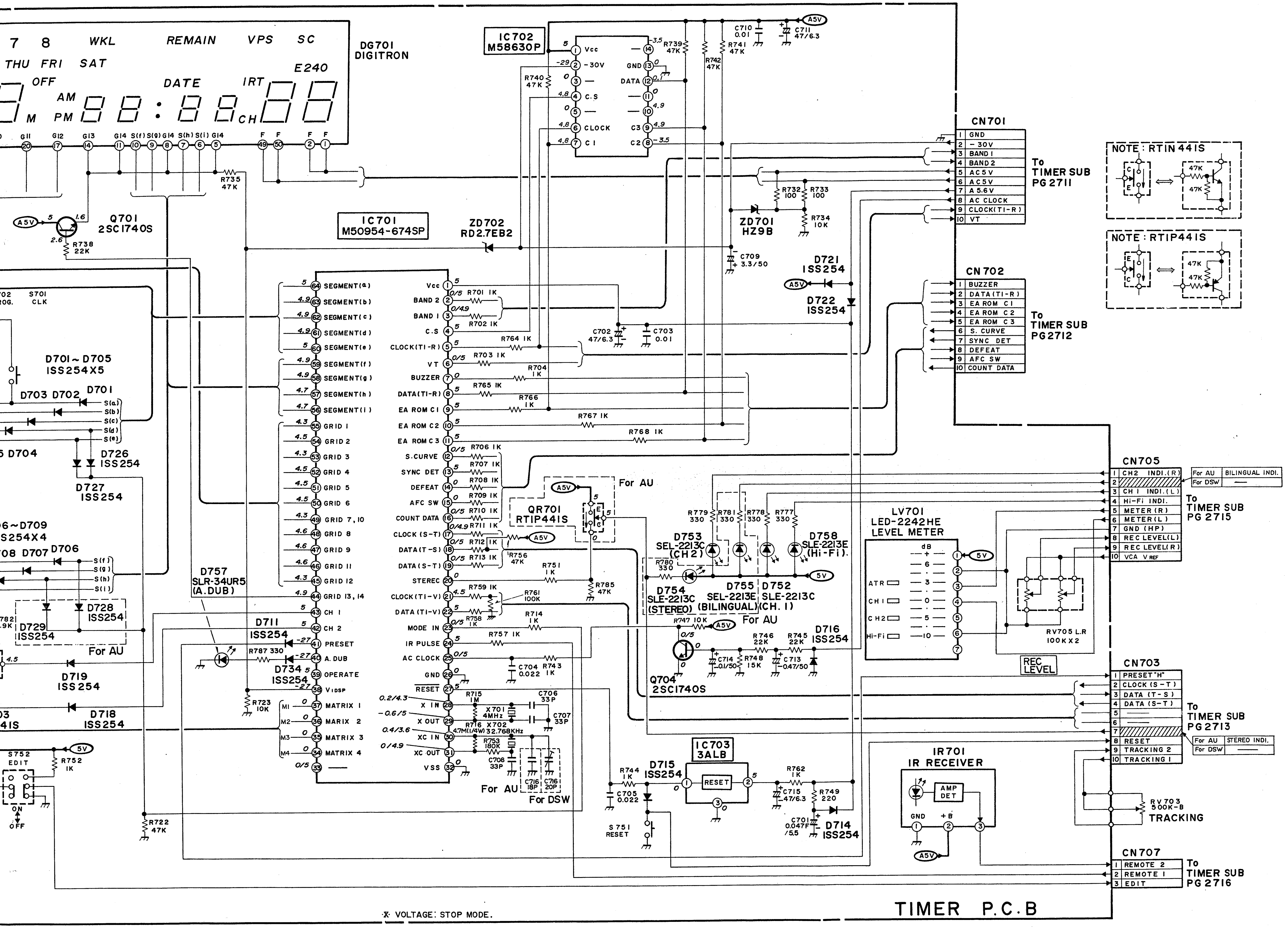
RF CONVERTER (DSW)	5-66


DG701 DIGITRON
VTR
INDEX
LP 1 2 3 4 5 6 7 8
WKL
REMAIN
VPS
SC
SUN MON TUE WED THU FRI SAT
E240
PLAY
REC
ON
AM
PM
OFF
DATE
IRT
CH
IC702 M58630P
IC701 M50954-674SP
Q701 2SC1740S
ZD702 RD2.7EB2
ZD701 HZ9B
D701~D705 ISS254X5
D706~D709 ISS254X4
D726 ISS254
D727 ISS254
D728 ISS254
D729 ISS254
D735 ISS254
D736 ISS254
D719 ISS254
D718 ISS254
D711 ISS254
D734 ISS254
D715 ISS254
D757 SLR-34UR5 (A.DUB)
QR701 RTIP441S
QR702 RTIN441S
QR703 RTIN441S
Q704 2SC1740S
IC703 3ALB
D753 SEL-2213C (CH2)
D754 SLE-2213C (STEREO)
D755 SEL-2213E (BILINGUAL)
D752 SLE-2213C (CH. 1)
D758 SLE-2213 (Hi-Fi
S737 A.DUB
S728 COUNTER/REMAIN
S723 F.FWD
S722 PAUSE
S720 TV/VTR
S714 CH(−)
S713 CH(+)
S712 LENGTH
S711 START
S710 REC
S705 STORE
S704 SET (−)
S703 SET (+)
S702 PROG.
S701 CLK
S716 RESET
S715 MEMORY
S733 SLOW
S726 PLAY
S725 STOP
S724 REW
S718 EJECT
S717 P IN P
S709 AFC
S708 SKIP
S707 PRESET
S706 CLEAR
S755 AUDIO
MIX AUTO NORMAL
S756 MPX
S757 AUX
S758 ALC
S752 EDIT
S751 RESET
For AU
For DSW
CN710 KEY To TIMER SUB CN2710
CN704 5V MIX MONITOR OUT MPX AUX ALC To TIMER SUB PG2714
X701 4MHz
X702 32.768KHz
SEGMENT(a) SEGMENT(b) SEGMENT(c) SEGMENT(d) SEGMENT(e) SEGMENT(f) SEGMENT(g) SEGMENT(h) SEGMENT(i)
GRID 1 GRID 2 GRID 3 GRID 4 GRID 5 GRID 6 GRID 7, 10 GRID 8 GRID 9 GRID 11 GRID 12 GRID 13, 14
CH 1 CH 2 PRESET A.DUB OPERATE VIDSP MATRIX 1 MARIX 2 MATRIX 3 MATRIX 4
Vcc BAND 2 BAND 1 C.S CLOCK(TI-R) VT BUZZER DATA(TI-R) EA ROM C1 EA ROM C2 EA ROM C3 S.CURVE SYNC DET DEFEAT AFC SW COUNT DATA CLOCK (S-T) DATA(T-S) DATA (S-T) STEREO CLOCK(TI-V) DATA (TI-V) MODE IN IR PULSE AC CLOCK GND RESET X IN X OUT XC IN XC OUT VSS
※ VOLTAGE: STOP MODE.
E D C B A
1 2 3 4 5 6 7 8


DG701 DIGITRON
IC702 M58630P
IC701 M50954-674SP
CN701
To TIMER SUB PG2711
CN702
To TIMER SUB PG2712
NOTE : RTIN441S
NOTE : RTIP441S
Q701 2SC1740S
ZD702 RD2.7EB2
ZD701 HZ9B
D721 1SS254
D722 1SS254
D701~D705 1SS254X5
D726 1SS254
D727 1SS254
QR701 RTIP441S
For AU
D753 SEL-2213C (CH2)
D758 SLE-2213E (Hi-Fi)
D754 SLE-2213C (STEREO)
D755 SEL-2213E (BILINGUAL)
D752 SLE-2213C (CH.1)
LV701 LED-2242HE LEVEL METER
CN705
To TIMER SUB PG2715
RV705 L.R 100KX2
REC LEVEL
D757 SLR-34UR5 (A.DUB)
D711 1SS254
D734 1SS254
D728 1SS254
D729 1SS254
D719 1SS254
D718 1SS254
Q704 2SC1740S
D716 1SS254
CN703
To TIMER SUB PG2713
IC703 3ALB
D715 1SS254
D714 1SS254
IR701 IR RECEIVER
RV703 500K-B TRACKING
CN707
To TIMER SUB PG2716
S751 RESET
S752 EDIT
For AU
For DSW
TIMER P.C.B
※ VOLTAGE: STOP MODE.

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CHARACTER GENERATOR	5-25
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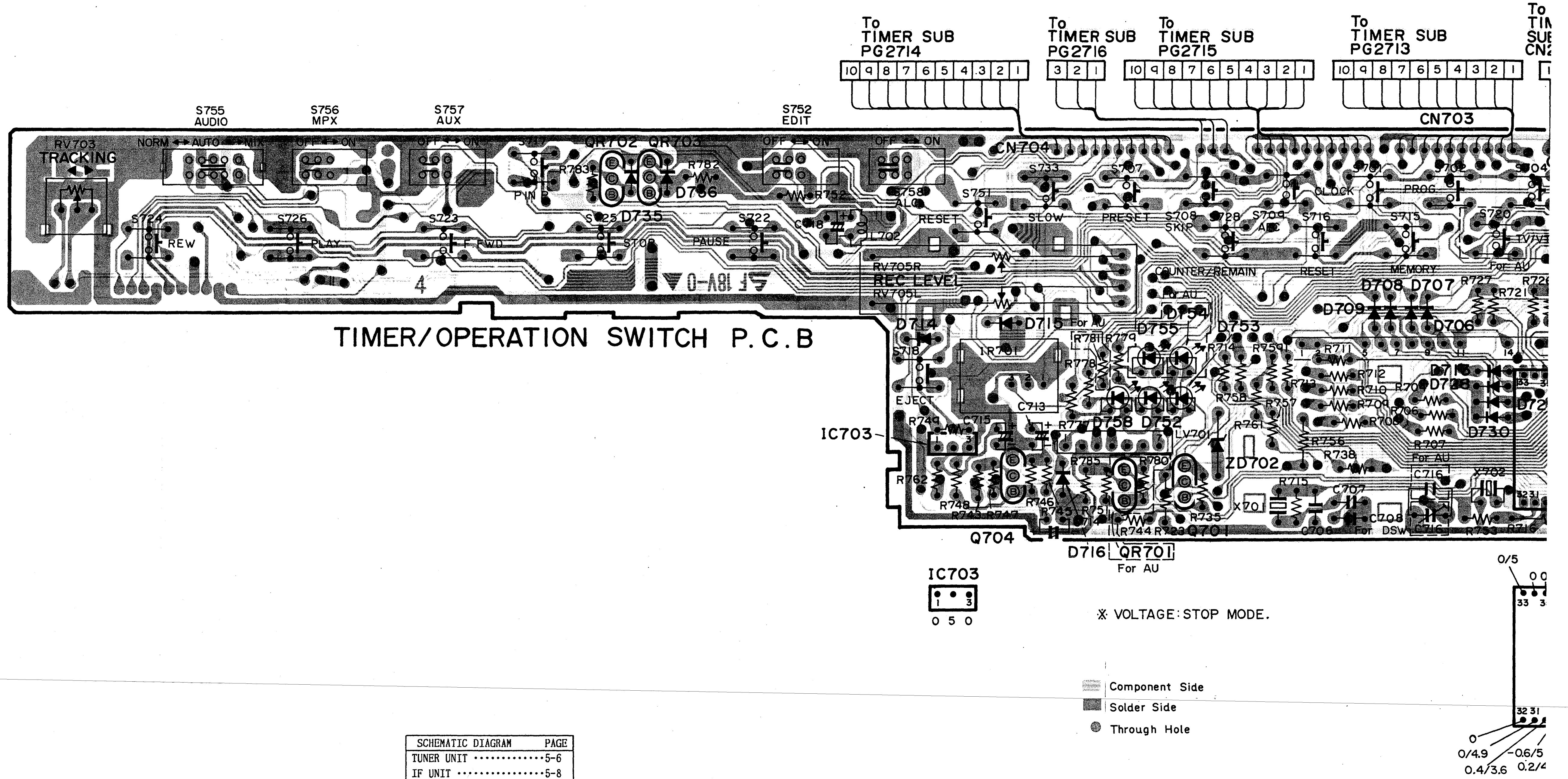
RF CONVERTER (DSW)	5-66

5 6 7 8 9 10 11 12


To TIMER SUB PG2714
To TIMER SUB PG2716
To TIMER SUB PG2715
To TIMER SUB PG2713
CN703
CN704
S755 AUDIO
S756 MPX
S757 AUX
S752 EDIT
RV703 TRACKING
NORM AUTO MIX
OFF ON
S724 REW
S726 PLAY
S723 F.FWD
S725 STOP
S722 PAUSE
S733
S707
S758 ALC
S751 RESET
SLOW
PRESET
S708 SKIP
S728
S709 AFC
S716
S701 CLOCK
S702 PROG
S715 MEMORY
S730 TV/VTR
S718 EJECT
QR702
QR703
D735
D736
R783
R782
R752
C718
L702
RV705R REC LEVEL RV705L
COUNTER/REMAIN
RESET
D708 D707 D709 D706
D714 D715 For AU
IR701
D755 D754 D753
D758 D752
C713 C715
R749 R762 R748 R745 R747 R746 R743
R785 R780 R744 R723 R735
LV701
ZD702
X701 X702
C707 C708 C716 C706
R715 R756 R738 R707
R711 R712 R710 R709 R706 R708 R705
D730
Q704
D716
QR701 For AU
Q701
IC703
0 5 0
0/5
33
32 31
0
0/4.9
0.4/3.6
-0.6/5
0.2/4
E
D
C
B
A
1
2
3
4
5
6
7
8

TIMER/OPERATION SWITCH P.C.B

※ VOLTAGE: STOP MODE.

▨ Component Side

■ Solder Side

● Through Hole

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CHARACTER GENERATOR	5-25
JACK	5-27
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AUDIO NR	5-35
FM AUDIO	5-38
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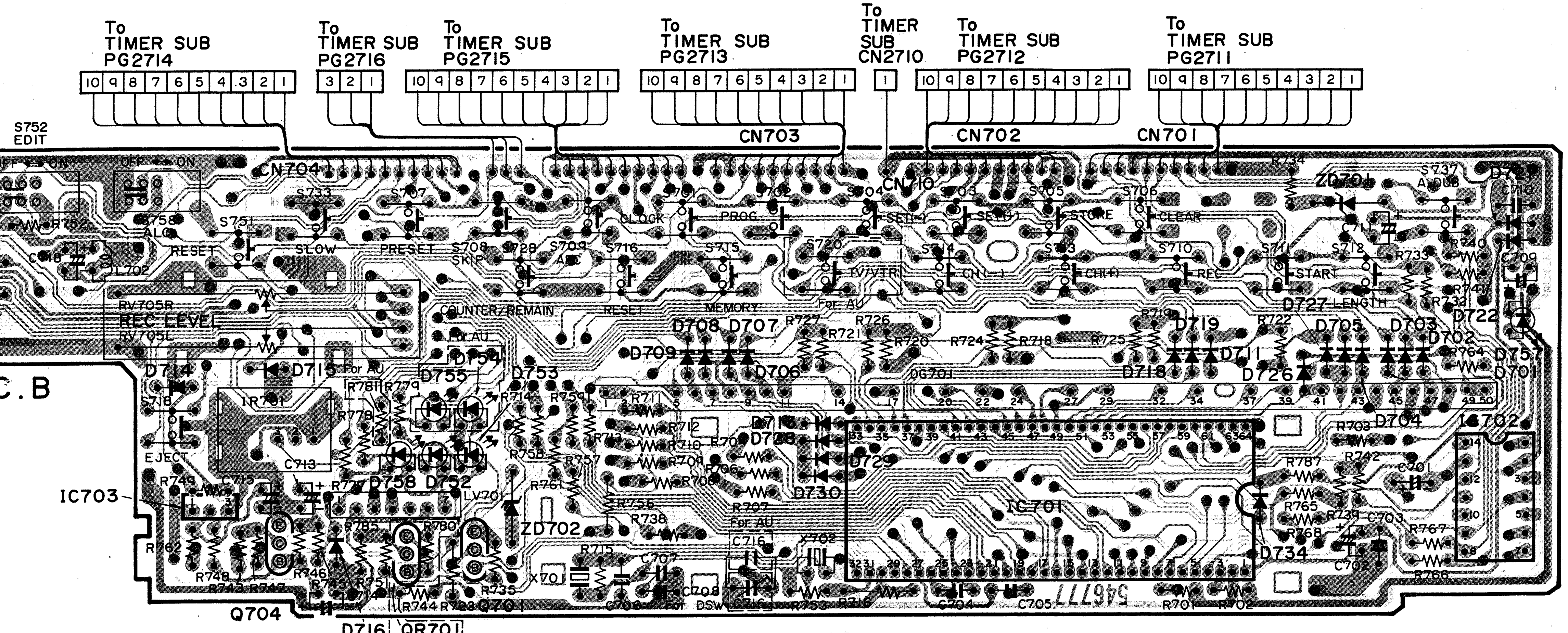
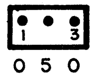

To TIMER SUB PG2714
To TIMER SUB PG2716
To TIMER SUB PG2715
To TIMER SUB PG2713
To TIMER SUB CN2710
To TIMER SUB PG2712
To TIMER SUB PG2711
CN704
CN703
CN702
CN701
CN710
S752 EDIT
OFF ⟷ ON
S733
S707
S701
S702
S704
S703
S705
S706
S737 A.DUB
S758 ALC
S751
RESET
SLOW
PRESET
S708 SKIP
S728
S709 AFS
S716
S715
S720
S714
S713
S710
S711
S712
CLOCK
PROG
SET(−)
SET(+)
STORE
CLEAR
TV/VTR
CH(−)
CH(+)
REC
START
LENGTH
For AU
RV705R
REC LEVEL
RV705L
COUNTER/REMAIN
MEMORY
D714
D715
D755
D754
D753
D708
D707
D709
D706
D719
D711
D718
D726
D727
D705
D703
D702
D722
D757
D701
D704
D721
D729
D730
D734
ZD701
ZD702
IR701
IC703
IC701
IC702
DG701
LV701
X701
X702
Q701
Q704
D716
QR701
For AU
D758
D752
EJECT
S718
L702
C718
C713
C715
C701
C702
C703
C704
C705
C706
C707
C708
C709
C710
C711
C716
R701
R702
R703
R704
R705
R706
R707
R708
R709
R710
R711
R712
R713
R714
R715
R716
R718
R719
R721
R722
R723
R724
R725
R726
R727
R728
R732
R733
R734
R735
R738
R739
R740
R741
R742
R743
R744
R746
R747
R748
R749
R751
R752
R753
R756
R757
R758
R759
R761
R762
R764
R765
R766
R767
R768
R771
R778
R779
R780
R781
R785
R787
546777
.B

IC703

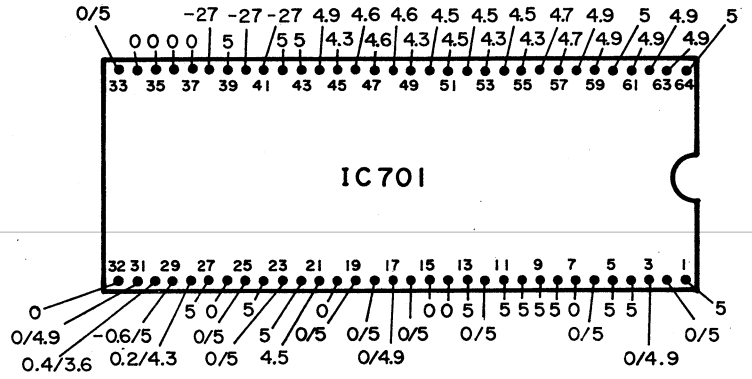


※ VOLTAGE: STOP MODE.

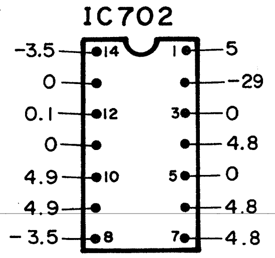
▒ Component Side

■ Solder Side

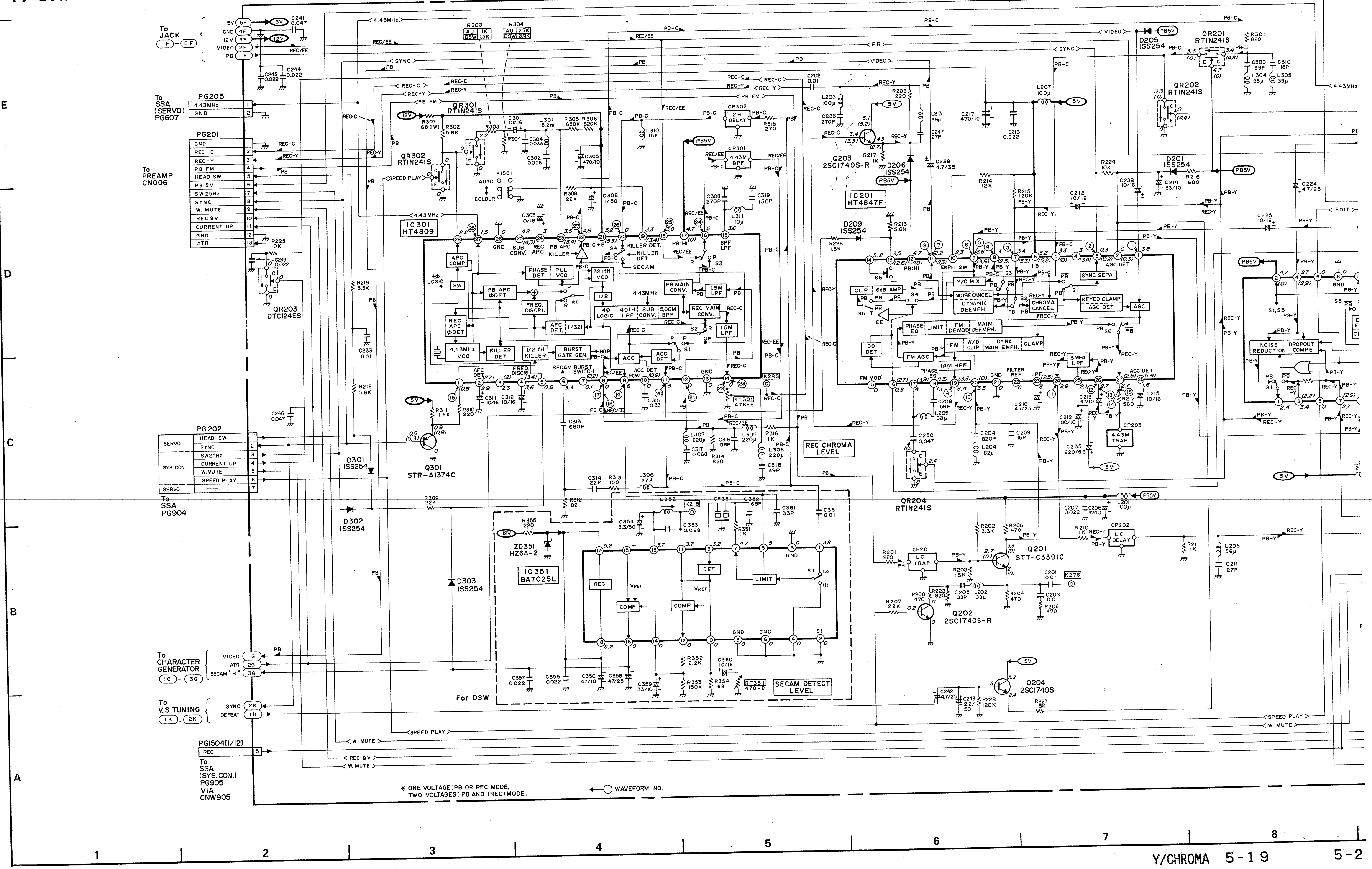
● Through Hole

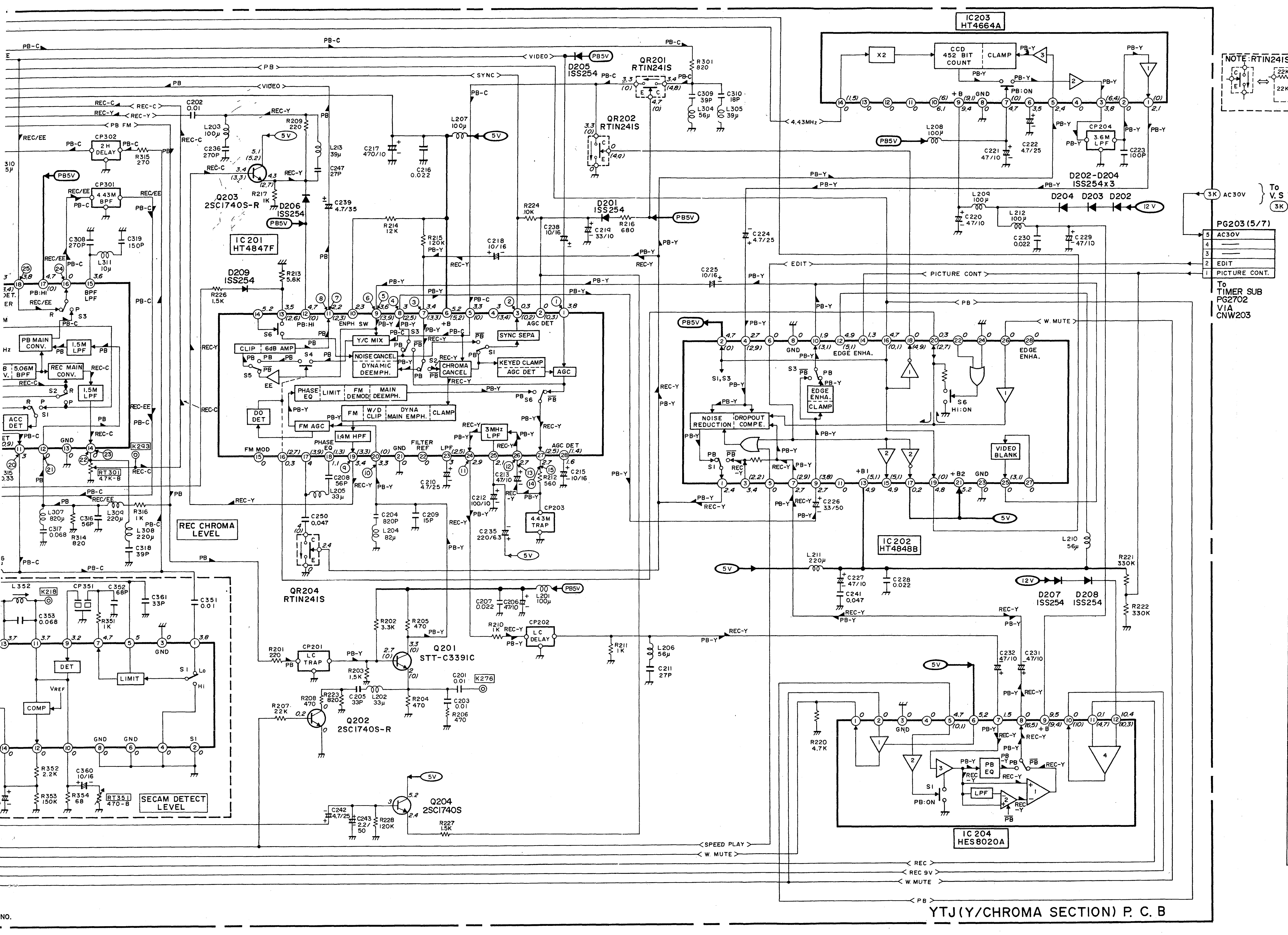

IC701
0/5
0 0 0 0
5
-27
-27
-27
5 5
4.9
4.3
4.6
4.6
4.6
4.3
4.5
4.5
4.5
4.3
4.5
4.3
4.7
4.7
4.9
4.9
5
4.9
4.9
4.9
5
33 35 37 39 41 43 45 47 49 51 53 55 57 59 61 63 64
32 31 29 27 25 23 21 19 17 15 13 11 9 7 5 3 1
0
0/4.9
0.4/3.6
-0.6/5
0.2/4.3
5
0/5
0/5
5
4.5
0
0/5
0/5
0/4.9
0/5
0 0 5
0/5
5 5 5 5 0
0/5
5 5
0/4.9
0/5
5

IC702


-3.5
14
0
0.1
12
0
4.9
10
4.9
-3.5
8
1
5
-29
3
0
4.8
5
0
4.8
7
4.8

Y/CHROMA


To JACK (1F)-(5F)
5V 5F
GND 4F
12V 3F
VIDEO 2F
PB 1F
To SSA (SERVO) PG607
PG205
4.43MHz
GND
To PREAMP CN006
PG201
GND
REC-C
REC-Y
PB FM
HEAD SW
PB 5V
SW25Hz
SYNC
W. MUTE
REC 9V
CURRENT UP
GND
ATR
QR203 DTC124ES
PG202
SERVO
HEAD SW
SYNC
SYS. CON.
SW25Hz
CURRENT UP
W. MUTE
SPEED PLAY
To SSA PG904
To CHARACTER GENERATOR (1G)-(3G)
VIDEO 1G
ATR 2G
SECAM "H" 3G
To V,S TUNING (1K),(2K)
SYNC 2K
DEFEAT 1K
PG1504(1/12)
REC
To SSA (SYS.CON.) PG905 VIA CNW905
QR301 RTIN241S
QR302 RTIN241S
S1501
AUTO
COLOUR
IC301 HT4809
APC COMP
4Φ LOGIC
SW
PB APC ΦDET
PHASE DET
PLL VCO
321fH VCO
FREQ. DISCRI.
REC APC ΦDET
1/8
4Φ LOGIC
40fH LPF
SUB CONV.
5.06M BPF
PB MAIN CONV.
1.5M LPF
REC MAIN CONV.
AFC DET.
1/321
4.43MHz VCO
KILLER DET
1/2 fH KILLER
BURST GATE GEN.
ACC
ACC DET
1.5M LPF
KILLER DET.
SECAM
CP302 2H DELAY
CP301 4.43M BPF
Q301 STR-A1374C
D301 1SS254
D302 1SS254
D303 1SS254
IC351 BA7025L
ZD351 HZ6A-2
REG
COMP
DET
LIMIT
SECAM DETECT LEVEL
For DSW
REC CHROMA LEVEL
Q203 2SC1740S-R
D206 1SS254
IC201 HT4847F
D209 1SS254
CLIP
6dB AMP
NOISE CANCEL
DYNAMIC DEEMPH.
Y/C MIX
CHROMA CANCEL
SYNC SEPA
KEYED CLAMP AGC DET
AGC
PHASE EQ
LIMIT
FM DEMOD
MAIN DEEMPH.
FM
W/D CLIP
DYNA MAIN EMPH.
CLAMP
DO DET
FM AGC
14M HPF
3MHz LPF
CP203 4.43M TRAP
QR204 RTIN241S
Q201 STT-C3391C
CP201 LC TRAP
Q202 2SC1740S-R
Q204 2SC1740S
CP202 LC DELAY
D205 1SS254
QR201 RTIN241S
QR202 RTIN241S
D201 1SS254
NOISE REDUCTION
DROPOUT COMPE.
EDIT
SPEED PLAY
W. MUTE
REC 9V
※ ONE VOLTAGE: PB OR REC MODE, TWO VOLTAGES: PB AND (REC) MODE.
WAVEFORM NO.
E
D
C
B
A
1
2
3
4
5
6
7
8


IC203 HT4664A
CCD 452 BIT COUNT
CLAMP
X2
3.6M LPF
NOTE: RTIN241S
To V.S TUNING
PG203 (5/7)
AC30V
EDIT
PICTURE CONT.
To TIMER SUB PG2702 VIA CNW203
IC201 HT4847F
Q203 2SC1740S-R
QR201 RTIN241S
QR202 RTIN241S
QR204 RTIN241S
D201 1SS254
D202-D204 1SS254x3
D205 1SS254
D206 1SS254
D209 1SS254
D207 1SS254
D208 1SS254
Y/C MIX
SYNC SEPA
NOISE CANCEL
DYNAMIC DEEMPH.
CHROMA CANCEL
KEYED CLAMP
AGC DET
AGC
CLIP
6dB AMP
PHASE EQ
LIMIT
FM DEMOD
MAIN DEEMPH.
W/D CLIP
DYNA MAIN EMPH.
CLAMP
FM AGC
DO DET
14M HPF
3MHz LPF
FILTER REF
REC CHROMA LEVEL
SECAM DETECT LEVEL
CP201 LC TRAP
CP202 LC DELAY
CP203 4.43M TRAP
CP204
CP301 4.43M BPF
CP302 2H DELAY
Q201 STT-C3391C
Q202 2SC1740S-R
Q204 2SC1740S
IC202 HT4848B
NOISE REDUCTION
DROPOUT COMPE.
EDGE ENHA.
EDGE ENHA. CLAMP
VIDEO BLANK
IC204 HES8020A
PB EQ
LPF
PB MAIN CONV.
REC MAIN CONV.
1.5M LPF
5.06M BPF
ACC DET
DET
LIMIT
COMP
SPEED PLAY
W. MUTE
REC
REC 9V
PB
5
6
7
8
9
10
11
12

YTJ (Y/CHROMA SECTION) P. C. B

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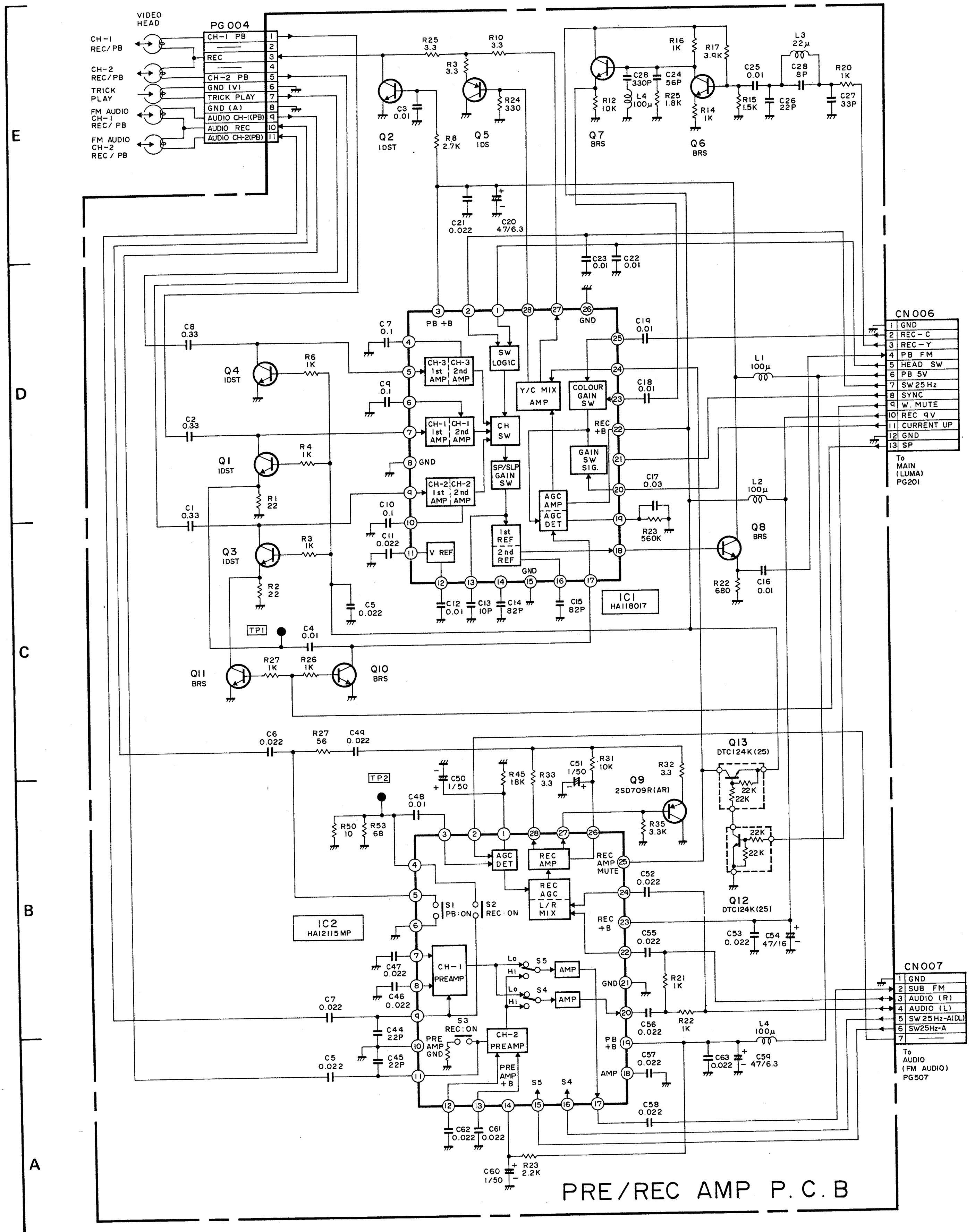
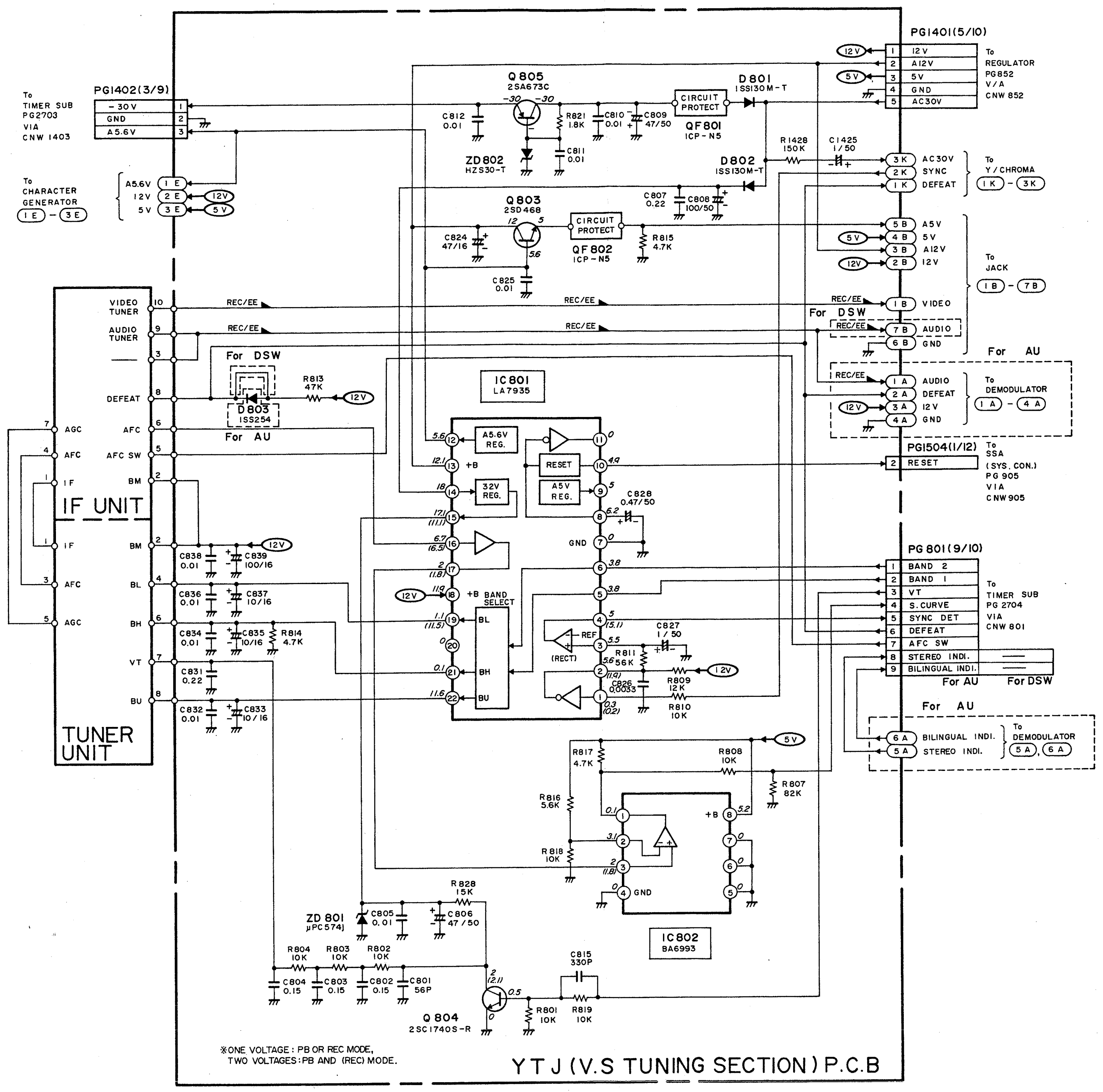
RF CONVERTER (AU)	5-65
RF CONVERTER (DSW)	5-66

PRE/REC AMP


VIDEO HEAD
CH-1 REC/PB
CH-2 REC/PB
TRICK PLAY
FM AUDIO CH-1 REC/PB
FM AUDIO CH-2 REC/PB
PG004
CH-1 PB
REC
CH-2 PB
GND (V)
TRICK PLAY
GND (A)
AUDIO CH-1(PB)
AUDIO REC
AUDIO CH-2(PB)
Q2 IDST
Q5 IDS
Q7 BRS
Q6 BRS
Q4 IDST
Q1 IDST
Q3 IDST
Q11 BRS
Q10 BRS
Q8 BRS
TP1
TP2
IC1 HA118017
PB +B
SW LOGIC
Y/C MIX AMP
COLOUR GAIN SW
CH SW
SP/SLP GAIN SW
AGC AMP
AGC DET
1st REF
2nd REF
V REF
GAIN SW SIG.
CN006
GND
REC-C
REC-Y
PB FM
HEAD SW
PB 5V
SW 25Hz
SYNC
W. MUTE
REC 9V
CURRENT UP
GND
SP
To MAIN (LUMA) PG201
Q9 2SD709R(AR)
Q13 DTC124K(25)
Q12 DTC124K(25)
IC2 HA12115MP
AGC DET
REC AMP
REC AGC
L/R MIX
REC AMP MUTE
CH-1 PREAMP
CH-2 PREAMP
PRE AMP +B
S1 PB:ON
S2 REC:ON
S3 REC:ON
S4
S5
CN007
GND
SUB FM
AUDIO (R)
AUDIO (L)
SW25Hz-A(DL)
SW25Hz-A
To AUDIO (FM AUDIO) PG507
PRE/REC AMP P.C.B
A
B
C
D
E
1
2
3
4

VS TUNING


To TIMER SUB PG2703 VIA CNW 1403
PG1402(3/9)
-30V
GND
A5.6V
To CHARACTER GENERATOR (1E)-(3E)
A5.6V
12V
5V
PG1401(5/10)
12V
A12V
5V
GND
AC30V
To REGULATOR PG852 V/A CNW 852
Q805 2SA673C
D801 1SS130M-T
CIRCUIT PROTECT
QF801 ICP-N5
ZD802 HZS30-T
D802 1SS130M-T
Q803 2SD468
QF802 ICP-N5
AC30V
SYNC
DEFEAT
To Y/CHROMA (1K)-(3K)
A5V
5V
A12V
12V
To JACK (1B)-(7B)
VIDEO
AUDIO
GND
For DSW
For AU
DEFEAT
12V
GND
To DEMODULATOR (1A)-(4A)
PG1504(1/12)
RESET
To SSA (SYS. CON.) PG 905 VIA CNW905
VIDEO TUNER
AUDIO TUNER
DEFEAT
AFC
AFC SW
BM
BL
BH
VT
BU
IF UNIT
TUNER UNIT
D803 1SS254
IC801 LA7935
A5.6V REG.
32V REG.
A5V REG.
RESET
BAND SELECT
REF
(RECT)
PG801(9/10)
BAND 2
BAND 1
VT
S.CURVE
SYNC DET
DEFEAT
AFC SW
STEREO INDI.
BILINGUAL INDI.
To TIMER SUB PG 2704 VIA CNW 801
BILINGUAL INDI.
STEREO INDI.
To DEMODULATOR (5A),(6A)
IC802 BA6993
ZD801 μPC574J
Q804 2SC1740S-R
※ONE VOLTAGE: PB OR REC MODE. TWO VOLTAGES: PB AND (REC) MODE.
YTJ (V.S TUNING SECTION) P.C.B
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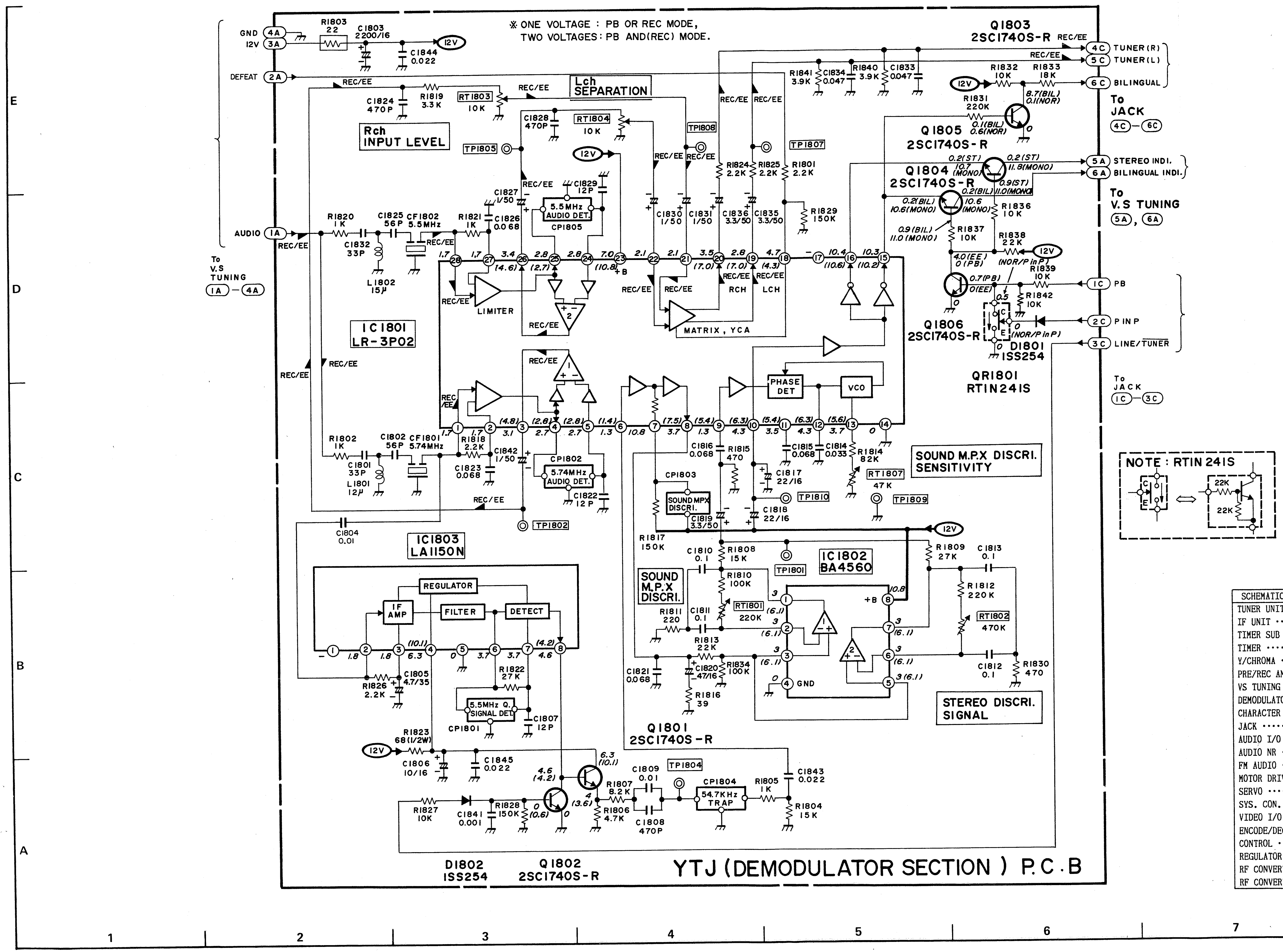
DEMODULATOR (For AU)


※ ONE VOLTAGE : PB OR REC MODE,
TWO VOLTAGES : PB AND(REC) MODE.
GND 4A
12V 3A
DEFEAT 2A
AUDIO 1A
To V.S TUNING 1A – 4A
Rch INPUT LEVEL
Lch SEPARATION
IC1801 LR-3P02
IC1803 LA1150N
IC1802 BA4560
LIMITER
MATRIX, YCA
PHASE DET
VCO
REGULATOR
IF AMP
FILTER
DETECT
5.5MHz AUDIO DET. CP1805
5.74MHz AUDIO DET. CP1802
5.5MHz Q. SIGNAL DET CP1801
54.7KHz TRAP CP1804
SOUND MPX DISCRI. CP1803
SOUND M.P.X DISCRI. SENSITIVITY
SOUND M.P.X DISCRI.
STEREO DISCRI. SIGNAL
Q1803 2SC1740S-R
Q1805 2SC1740S-R
Q1804 2SC1740S-R
Q1806 2SC1740S-R
Q1801 2SC1740S-R
Q1802 2SC1740S-R
D1802 1SS254
D1801 1SS254
QR1801 RTIN241S
TUNER(R) 4C
TUNER(L) 5C
BILINGUAL 6C
To JACK 4C – 6C
STEREO INDI. 5A
BILINGUAL INDI. 6A
To V.S TUNING 5A, 6A
PB 1C
P IN P 2C
LINE/TUNER 3C
To JACK 1C – 3C
NOTE : RTIN241S
22K
REC/EE
TP1801 TP1802 TP1804 TP1805 TP1807 TP1808 TP1809 TP1810
RT1801 220K
RT1802 470K
RT1803 10K
RT1804 10K
RT1807 47K
YTJ (DEMODULATOR SECTION) P.C.B
E
D
C
B
A
1
2
3
4
5
6
7
8

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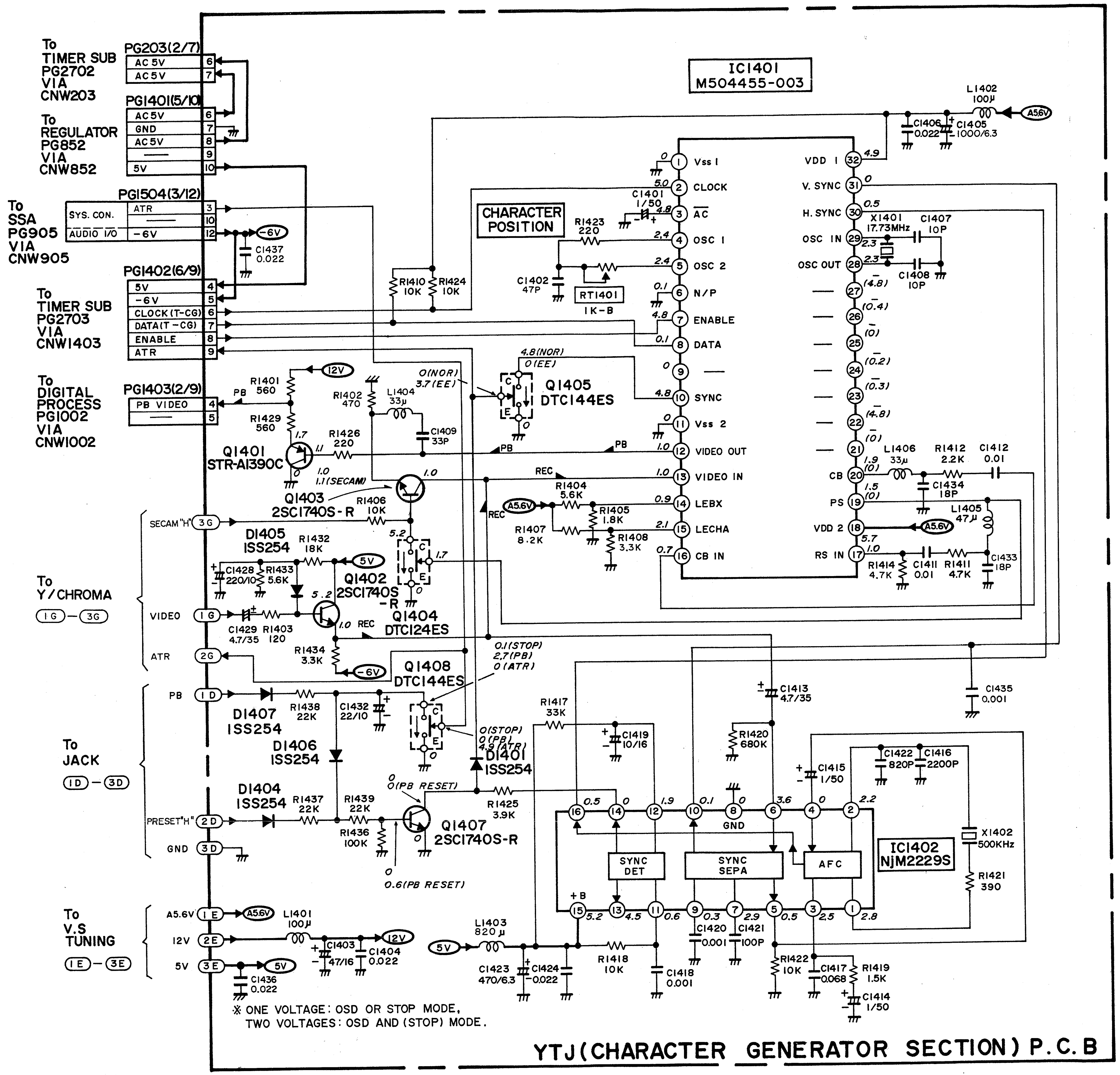
RF CONVERTER (DSW)	5-66

CHARACTER GENERATOR


To TIMER SUB PG2702 VIA CNW203
PG203(2/7)
AC 5V
AC 5V
To REGULATOR PG852 VIA CNW852
PG1401(5/10)
AC5V
GND
AC5V
5V
To SSA PG905 VIA CNW905
PG1504(3/12)
SYS. CON.
AUDIO I/O
ATR
-6V
C1437 0.022
To TIMER SUB PG2703 VIA CNW1403
PG1402(6/9)
5V
-6V
CLOCK(T-CG)
DATA(T-CG)
ENABLE
ATR
To DIGITAL PROCESS PG1002 VIA CNW1002
PG1403(2/9)
PB VIDEO
IC1401
M504455-003
CHARACTER POSITION
R1410 10K
R1424 10K
C1402 47P
R1423 220
RT1401 1K-B
C1401 1/50
Vss 1
CLOCK
AC
OSC 1
OSC 2
N/P
ENABLE
DATA
SYNC
Vss 2
VIDEO OUT
VIDEO IN
LEBX
LECHA
CB IN
VDD 1
V. SYNC
H. SYNC
OSC IN
OSC OUT
CB
PS
VDD 2
RS IN
L1402 100μ
A5.6V
C1406 0.022
C1405 1000/6.3
X1401 17.73MHz
C1407 10P
C1408 10P
L1406 33μ
R1412 2.2K
C1412 0.01
C1434 18P
L1405 47μ
R1414 4.7K
C1411 0.01
R1411 4.7K
C1433 18P
R1401 560
R1429 560
R1402 470
L1404 33μ
C1409 33P
R1426 220
Q1401 STR-A1390C
Q1403 2SC1740S-R
1.1(SECAM)
R1406 10K
O(NOR)
3.7(EE)
4.8(NOR)
O(EE)
Q1405 DTC144ES
R1404 5.6K
R1405 1.8K
R1407 8.2K
R1408 3.3K
REC
PB
SECAM"H"
D1405 1SS254
R1432 18K
C1428 220/10
R1433 5.6K
Q1402 2SC1740S-R
Q1404 DTC124ES
C1429 4.7/35
R1403 120
R1434 3.3K
To Y/CHROMA
1G - 3G
VIDEO
ATR
Q1408 DTC144ES
0.1(STOP)
2.7(PB)
0(ATR)
PB
D1407 1SS254
R1438 22K
C1432 22/10
D1406 1SS254
0(STOP)
0(PB)
4.9(ATR)
D1401 1SS254
To JACK
1D - 3D
D1404 1SS254
R1437 22K
R1439 22K
R1436 100K
0(PB RESET)
0.6(PB RESET)
Q1407 2SC1740S-R
R1425 3.9K
PRESET"H"
GND
R1417 33K
C1419 10/16
C1413 4.7/35
R1420 680K
C1415 1/50
C1422 820P
C1416 2200P
C1435 0.001
X1402 500KHz
R1421 390
IC1402 NJM2229S
SYNC DET
SYNC SEPA
AFC
+B
GND
To V.S TUNING
1E - 3E
A5.6V
12V
5V
L1401 100μ
C1403 47/16
C1404 0.022
C1436 0.022
L1403 820μ
C1423 470/6.3
C1424 0.022
R1418 10K
C1418 0.001
C1420 0.001
C1421 100P
R1422 10K
C1417 0.068
R1419 1.5K
C1414 1/50
※ ONE VOLTAGE: OSD OR STOP MODE, TWO VOLTAGES: OSD AND (STOP) MODE.
YTJ (CHARACTER GENERATOR SECTION) P.C.B

SCHEMATIC DIAGRAM PAGE
TUNER UNIT ••••••••••••••5-6
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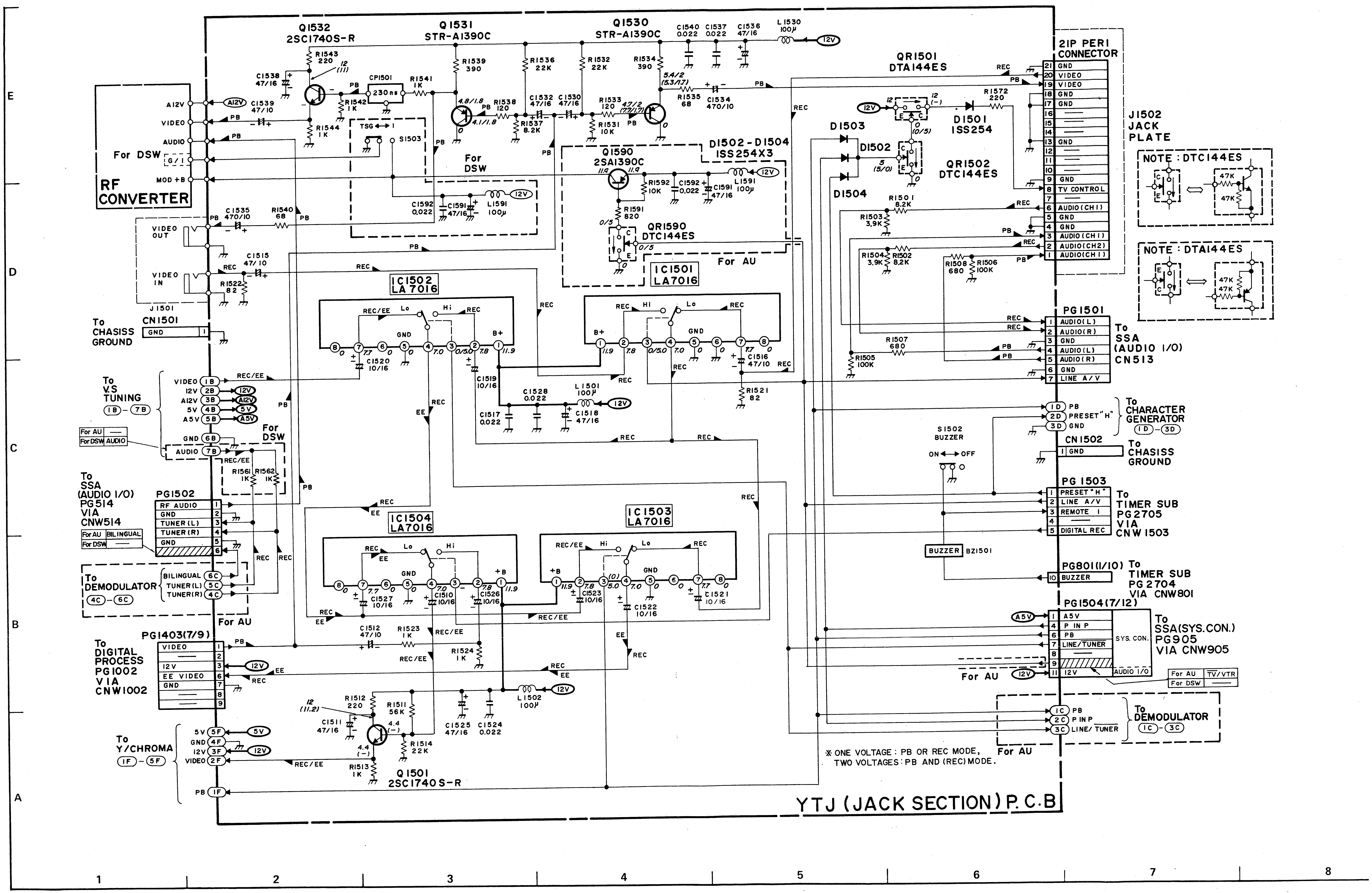
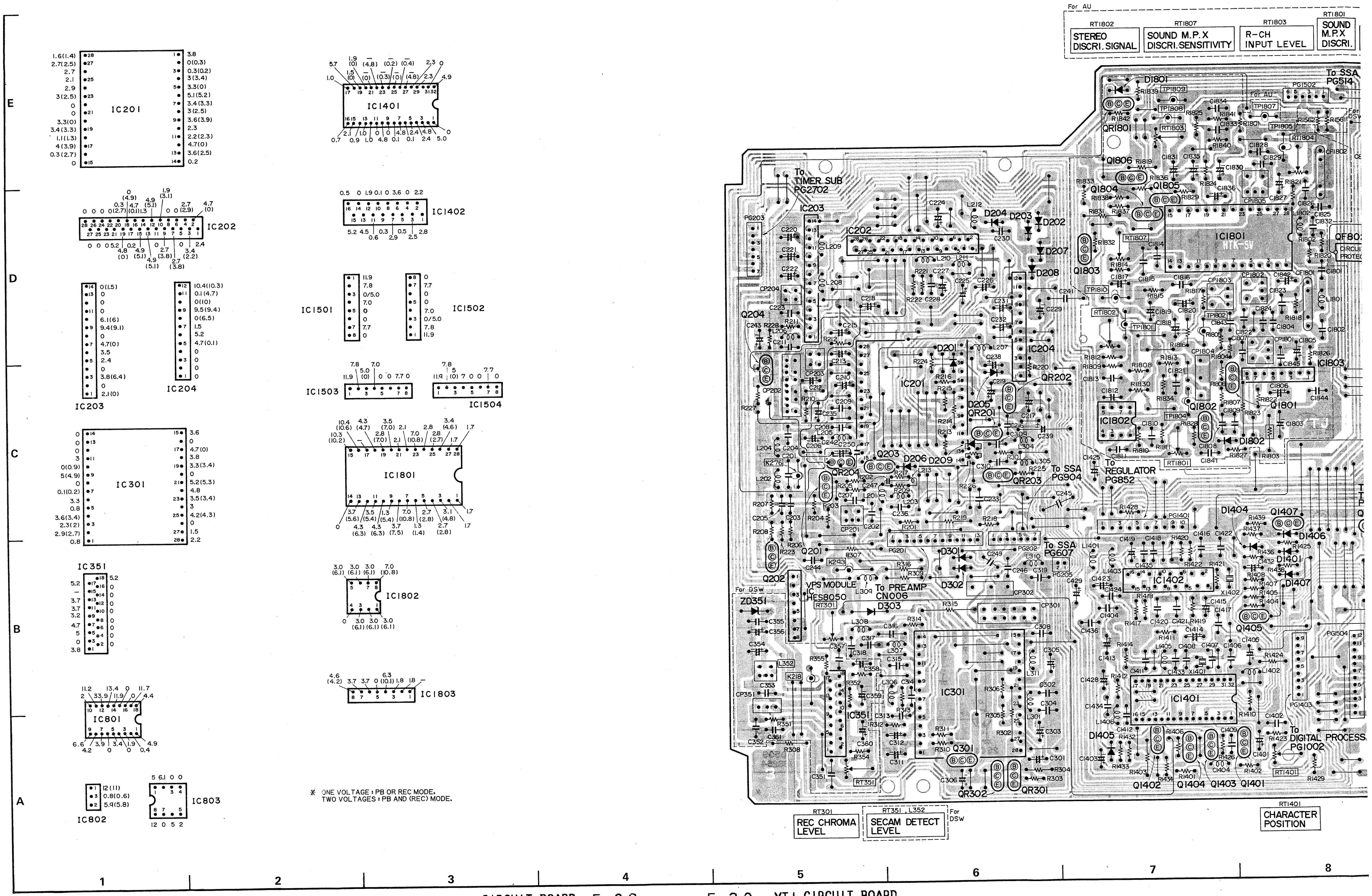
REGULATOR ••••••••••••••5-62
RF CONVERTER (AU) ••••••5-65
RF CONVERTER (DSW) •••••5-66

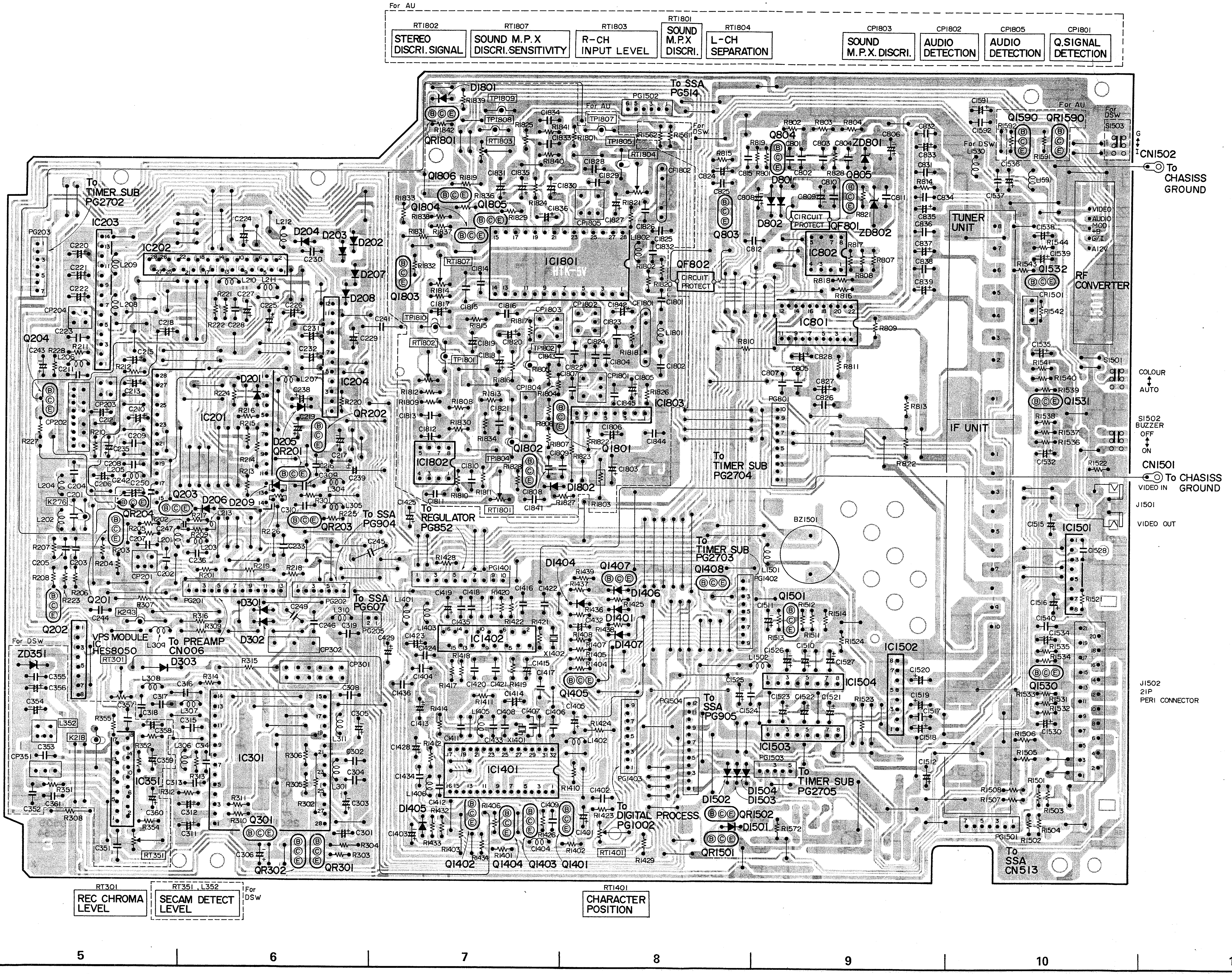

Q1532
2SC1740S-R
Q1531
STR-A1390C
Q1530
STR-A1390C
C1540 0.022
C1537 0.022
C1536 47/16
L1530 100μ
12V
21P PERI CONNECTOR
QR1501
DTA144ES
J1502
JACK
PLATE
RF CONVERTER
A12V
VIDEO
AUDIO
For DSW
G/I
MOD +B
CP1501 230ns
TSG
S1503
For DSW
Q1590
2SA1390C
QR1590
DTC144ES
D1502-D1504
1SS254X3
D1503
D1502
D1504
D1501
1SS254
QR1502
DTC144ES
For AU
IC1501
LA7016
IC1502
LA7016
IC1503
LA7016
IC1504
LA7016
NOTE : DTC144ES
NOTE : DTA144ES
47K
VIDEO OUT
VIDEO IN
J1501
To CHASSIS GROUND
CN1501
GND
To V.S TUNING
(1B)-(7B)
For AU
For DSW AUDIO
For DSW
To SSA (AUDIO I/O) PG514 VIA CNW514
PG1502
RF AUDIO
GND
TUNER (L)
TUNER (R)
For AU BILINGUAL
To DEMODULATOR (4C)-(6C)
BILINGUAL
TUNER(L)
TUNER(R)
For AU
To DIGITAL PROCESS PG1002 VIA CNW1002
PG1403(7/9)
VIDEO
12V
EE VIDEO
GND
To Y/CHROMA (1F)-(5F)
Q1501
2SC1740S-R
PG1501
AUDIO(L)
AUDIO(R)
LINE A/V
To SSA (AUDIO I/O) CN513
To CHARACTER GENERATOR (1D)-(3D)
PB
PRESET "H"
S1502 BUZZER
ON ↔ OFF
CN1502
To CHASISS GROUND
PG 1503
PRESET "H"
LINE A/V
REMOTE I
DIGITAL REC
To TIMER SUB PG2705 VIA CNW 1503
BUZZER BZ1501
PG801(1/10)
BUZZER
To TIMER SUB PG 2704 VIA CNW801
PG1504(7/12)
A5V
P IN P
LINE/TUNER
SYS. CON.
AUDIO I/O
To SSA(SYS.CON.) PG905 VIA CNW905
For AU TV/VTR
For DSW
To DEMODULATOR (1C)-(3C)
PB
P IN P
LINE/TUNER
For AU
※ ONE VOLTAGE : PB OR REC MODE,
TWO VOLTAGES : PB AND (REC) MODE.
YTJ (JACK SECTION) P.C.B
GND
VIDEO
TV CONTROL
AUDIO (CH I)
AUDIO(CH2)
REC
PB
EE
REC/EE
Hi
Lo
B+
E
D
C
B
A
1
2
3
4
5
6
7
8

YTJ CIRCUIT BOARD



IC201
IC1401
IC202
IC1402
IC203
IC204
IC1501
IC1502
IC1503
IC1504
IC301
IC1801
IC351
IC1802
IC801
IC1803
IC802
IC803
For AU
RT1802 STEREO DISCRI. SIGNAL
RT1807 SOUND M.P.X DISCRI. SENSITIVITY
RT1803 R-CH INPUT LEVEL
RT1801 SOUND M.P.X DISCRI.
To SSA PG514
To TIMER SUB PG2702
To REGULATOR PG852
To SSA PG904
To SSA PG607
To PREAMP CN006
VPS MODULE IC HES8050
To DIGITAL PROCESS. PG1002
For DSW
RT301 REC CHROMA LEVEL
RT351, L352 SECAM DETECT LEVEL
For DSW
RT1401 CHARACTER POSITION
A
B
C
D
E
1
2
3
4
5
6
7
8

※ ONE VOLTAGE : PB OR REC MODE.
TWO VOLTAGES : PB AND (REC) MODE.



For AU
RT1802 STEREO DISCRI. SIGNAL
RT1807 SOUND M.P.X DISCRI.SENSITIVITY
RT1803 R-CH INPUT LEVEL
RT1801 SOUND M.P.X DISCRI.
RT1804 L-CH SEPARATION
CP1803 SOUND M.P.X. DISCRI.
CP1802 AUDIO DETECTION
CP1805 AUDIO DETECTION
CP1801 Q.SIGNAL DETECTION
To SSA PG514
To TIMER SUB PG2702
IC1801
IC801
IC802
TUNER UNIT
RF CONVERTER
IF UNIT
CN1502 To CHASISS GROUND
COLOUR AUTO
S1502 BUZZER OFF ON
CN1501 To CHASISS GROUND
VIDEO IN
J1501
VIDEO OUT
J1502 21P PERI CONNECTOR
To TIMER SUB PG2704
To REGULATOR PG852
To SSA PG904
To SSA PG607
To TIMER SUB PG2703
BZ1501
To PREAMP CN006
VPS MODULE HES8050
For DSW
To SSA PG905
To TIMER SUB PG2705
To DIGITAL PROCESS PG1002
To SSA CN513
IC1401
IC1402
IC1501
IC1502
IC1503
IC1504
IC201
IC202
IC203
IC204
IC301
IC351
RT301 REC CHROMA LEVEL
RT351, L352 SECAM DETECT LEVEL For DSW
RT1401 CHARACTER POSITION
4
5
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9
10
11

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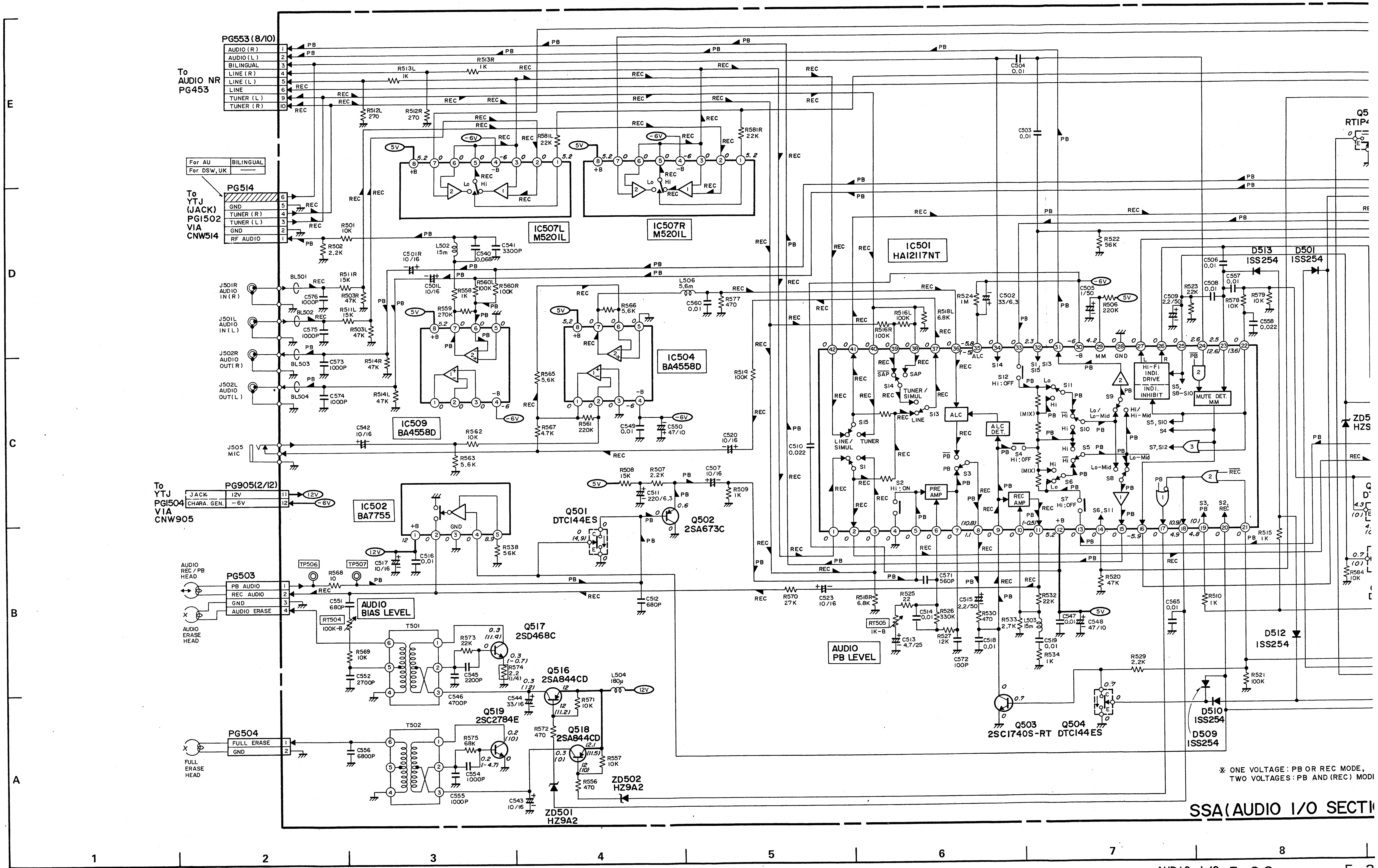
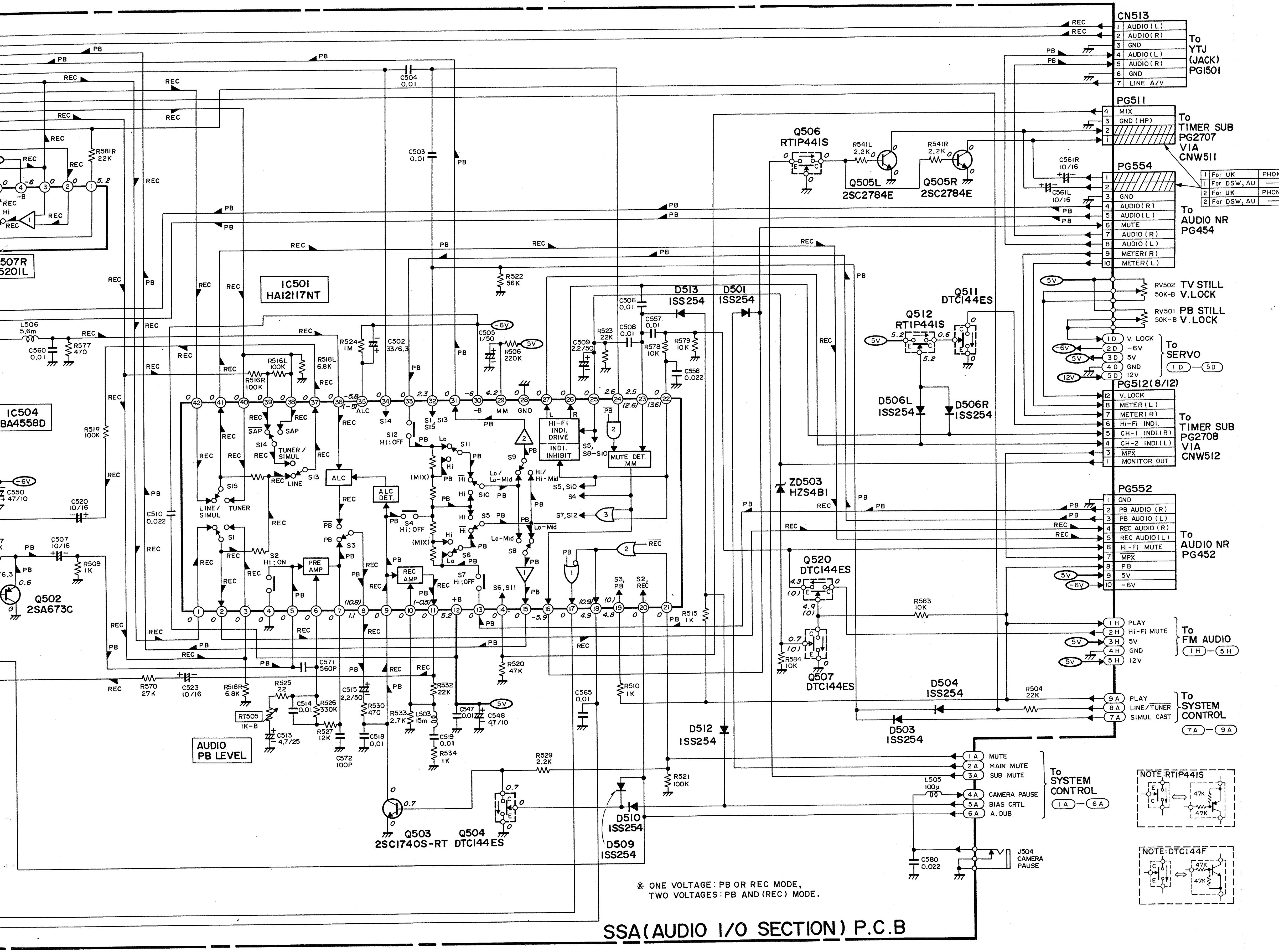

PG553(8/10)
AUDIO (R)
AUDIO (L)
BILINGUAL
LINE (R)
LINE (L)
LINE
TUNER (L)
TUNER (R)
To AUDIO NR PG453
For AU BILINGUAL
For DSW, UK
PG514
To YTJ (JACK) PG1502 VIA CNW514
GND
TUNER (R)
TUNER (L)
RF AUDIO
IC507L M5201L
IC507R M5201L
IC509 BA4558D
IC504 BA4558D
IC501 HA12117NT
IC502 BA7755
J501R AUDIO IN (R)
J501L AUDIO IN (L)
J502R AUDIO OUT (R)
J502L AUDIO OUT (L)
J505 MIC
To YTJ PG1504 VIA CNW905
PG905(2/12)
JACK 12V
CHARA. GEN. -6V
Q501 DTC144ES
Q502 2SA673C
AUDIO REC/PB HEAD
AUDIO ERASE HEAD
PG503
PB AUDIO
REC AUDIO
GND
AUDIO ERASE
TP506
TP507
AUDIO BIAS LEVEL
RT504 100K-B
T501
T502
Q517 2SD468C
Q516 2SA844CD
Q519 2SC2784E
Q518 2SA844CD
ZD501 HZ9A2
ZD502 HZ9A2
FULL ERASE HEAD
PG504
FULL ERASE
GND
AUDIO PB LEVEL
RT505 1K-B
Q503 2SC1740S-RT
Q504 DTC144ES
D513 1SS254
D501 1SS254
D512 1SS254
D510 1SS254
D509 1SS254
ALC
ALC DET.
PRE AMP
REC AMP
Hi-Fi INDI. DRIVE
INDI. INHIBIT
MUTE DET. MM
LINE/SIMUL
TUNER
TUNER/SIMUL
SAP
Q5 RTIP
ZD5 HZS
E
D
C
B
A
1
2
3
4
5
6
7
8

※ ONE VOLTAGE: PB OR REC MODE,
TWO VOLTAGES: PB AND (REC) MODI

SSA(AUDIO I/O SECTI


CN513
AUDIO (L)
AUDIO (R)
GND
LINE A/V
To YTJ (JACK) PG1501
PG511
MIX
GND (HP)
To TIMER SUB PG2707 VIA CNW511
PG554
For UK PHONE(R)
For DSW, AU
For UK PHONE(L)
MUTE
METER (R)
METER (L)
To AUDIO NR PG454
Q506 RTIP441S
Q505L 2SC2784E
Q505R 2SC2784E
R541L 2.2K
R541R 2.2K
C561R 10/16
C561L 10/16
RV502 50K-B TV STILL V.LOCK
RV501 50K-B PB STILL V.LOCK
V. LOCK
-6V
5V
12V
To SERVO (1D)—(5D)
PG512(8/12)
Hi-Fi INDI.
CH-1 INDI.(R)
CH-2 INDI.(L)
MPX
MONITOR OUT
To TIMER SUB PG2708 VIA CNW512
PG552
PB AUDIO (R)
PB AUDIO (L)
REC AUDIO (R)
REC AUDIO (L)
Hi-Fi MUTE
PB
To AUDIO NR PG452
Q511 DTC144ES
Q512 RTIP441S
D506L 1SS254
D506R 1SS254
ZD503 HZS4B1
Q520 DTC144ES
Q507 DTC144ES
R583 10K
R584 10K
PLAY
Hi-Fi MUTE
To FM AUDIO (1H)—(5H)
D504 1SS254
R504 22K
D503 1SS254
LINE/TUNER
SIMUL CAST
To SYSTEM CONTROL (7A)—(9A)
MUTE
MAIN MUTE
SUB MUTE
CAMERA PAUSE
BIAS CRTL
A. DUB
To SYSTEM CONTROL (1A)—(6A)
L505 100μ
C580 0.022
J504 CAMERA PAUSE
IC501 HA12117NT
ALC
ALC DET.
PRE AMP
REC AMP
Hi-Fi INDI. DRIVE
INDI. INHIBIT
MUTE DET. MM
TUNER / SIMUL
LINE/SIMUL
SAP
D513 1SS254
D501 1SS254
D512 1SS254
D510 1SS254
D509 1SS254
Q503 2SC1740S-RT
Q504 DTC144ES
Q502 2SA673C
IC504 BA4558D
RT505 1K-B
AUDIO PB LEVEL
NOTE:RTIP441S
NOTE:DTC144F
47K
REC
PB
5
6
7
8
9
10
11
12

※ ONE VOLTAGE: PB OR REC MODE,
TWO VOLTAGES: PB AND (REC) MODE.

SSA(AUDIO I/O SECTION) P.C.B

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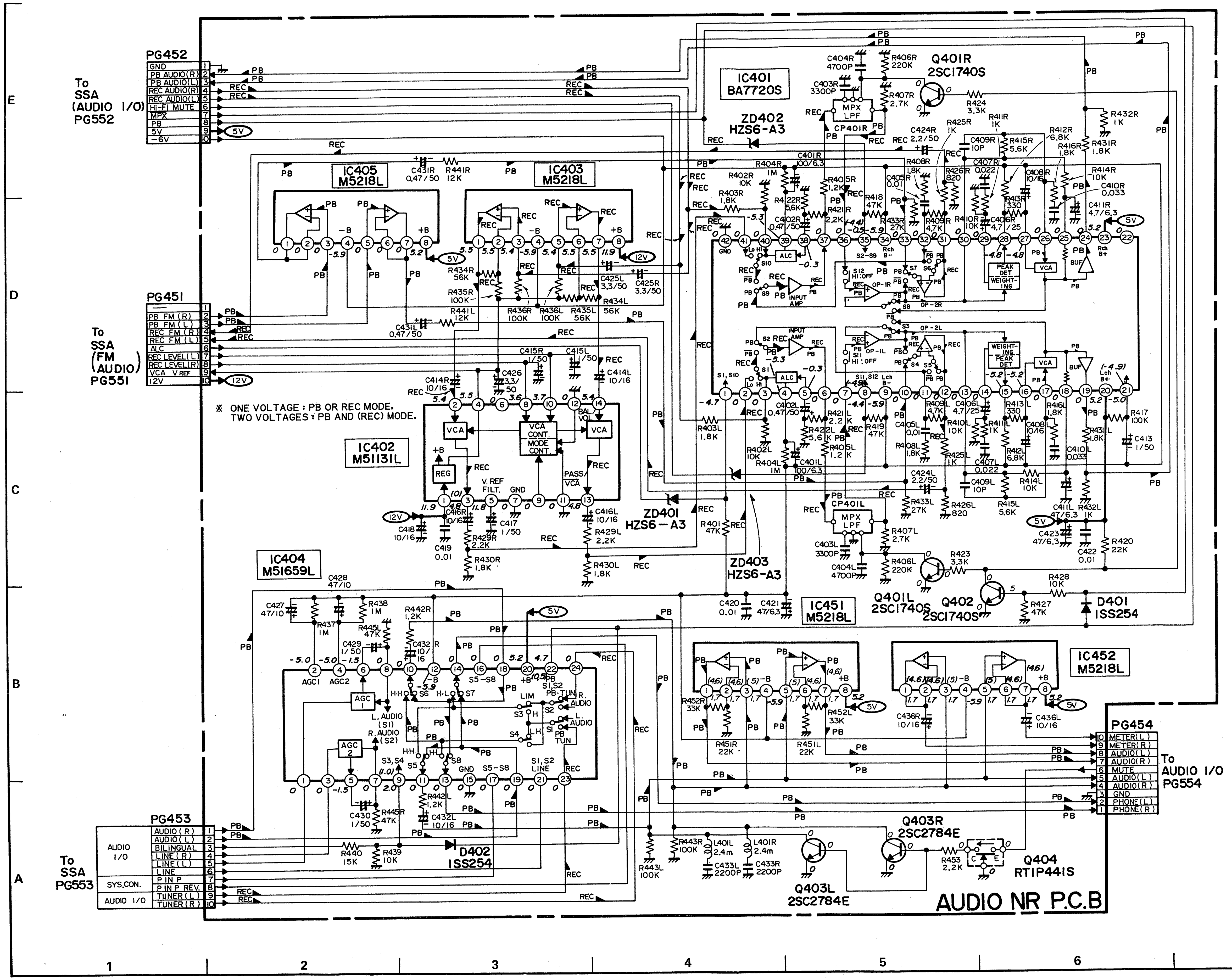
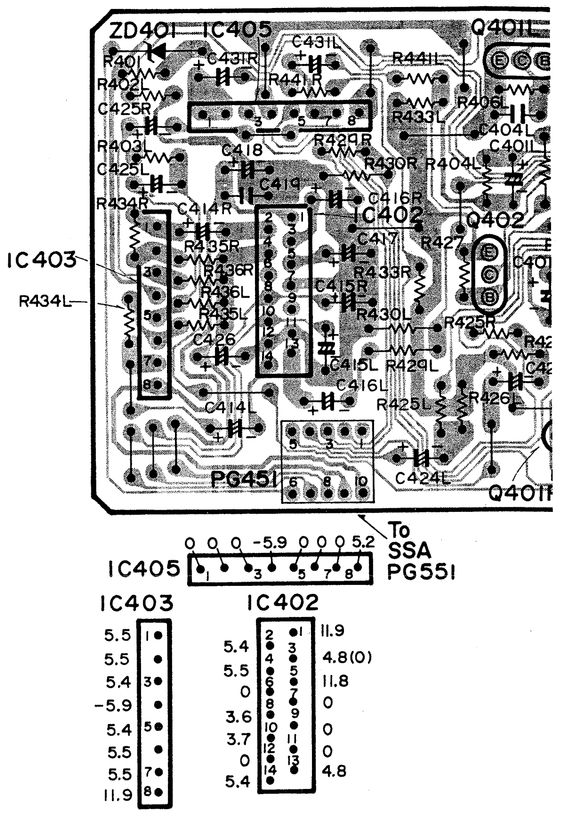
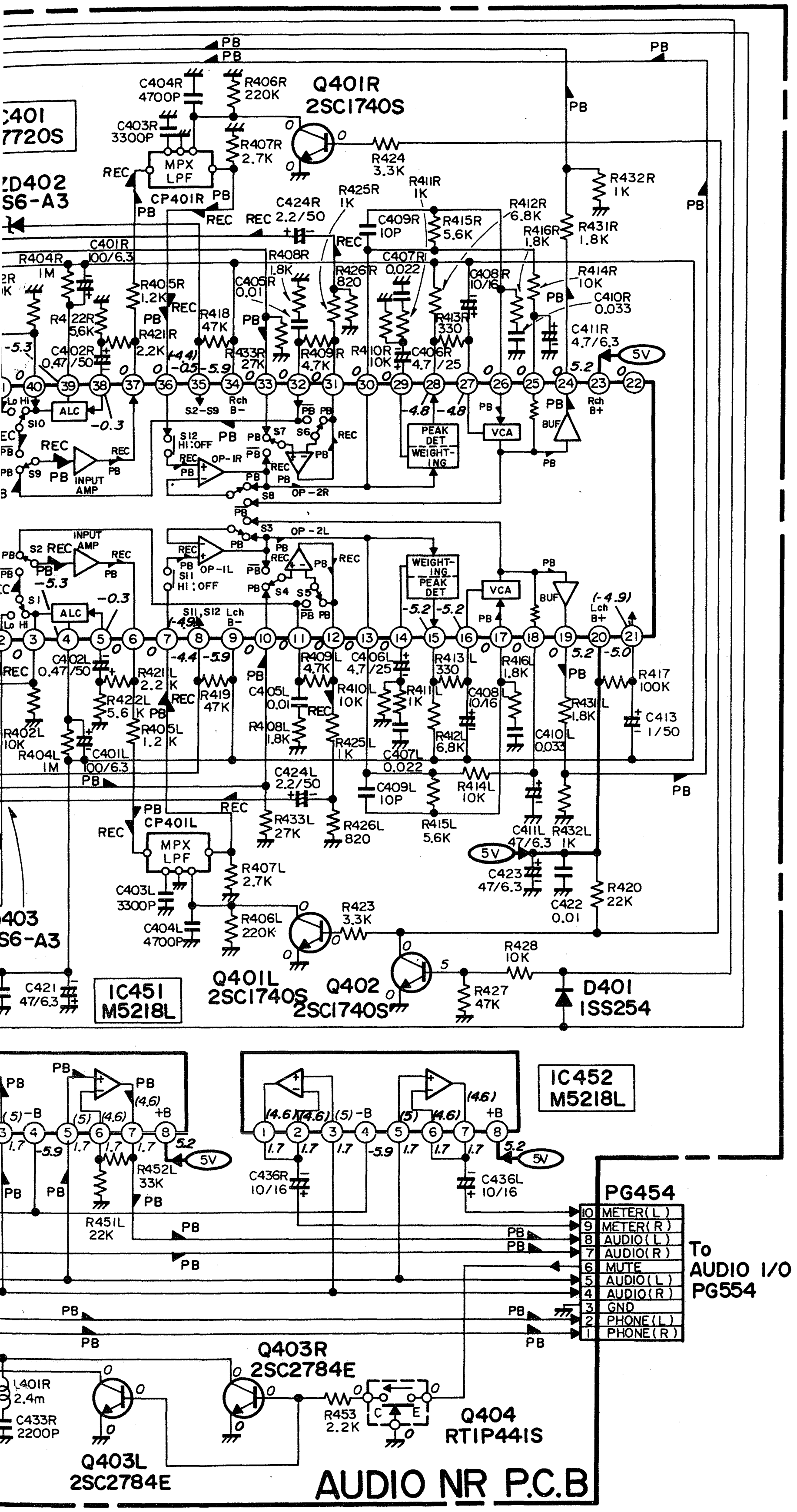
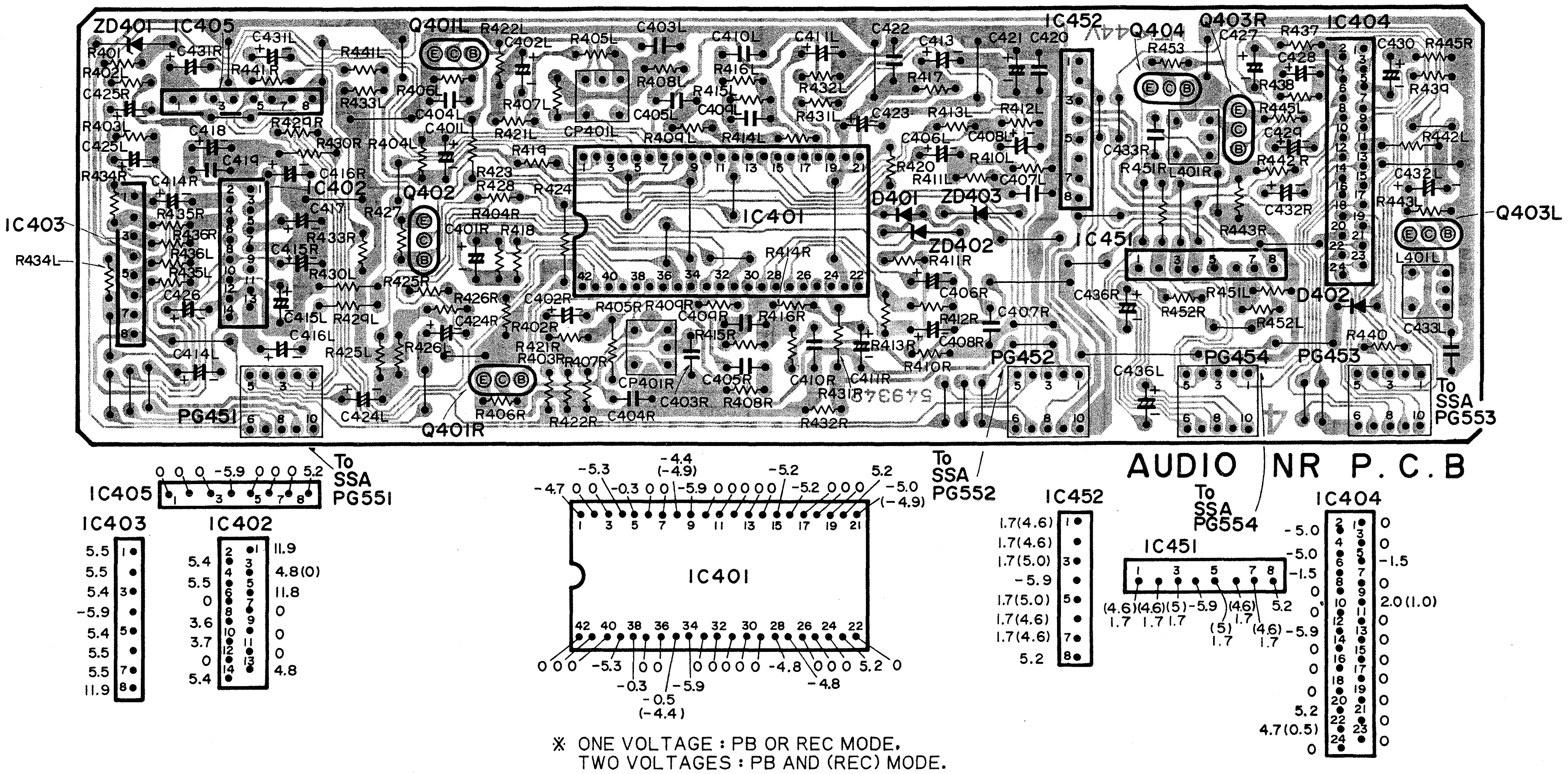
RF CONVERTER (DSW)	5-66

AUDIO-NR


AUDIO NR P.C.B
PG452
GND
PB AUDIO(R)
PB AUDIO(L)
REC AUDIO(R)
REC AUDIO(L)
Hi-Fi MUTE
MPX
PB
5V
-6V
To SSA (AUDIO I/O) PG552
PG451
PB FM (R)
PB FM (L)
REC FM (R)
REC FM (L)
ALC
REC LEVEL(L)
REC LEVEL(R)
VCA V REF
12V
To SSA (FM AUDIO) PG551
PG453
AUDIO (R)
AUDIO (L)
BILINGUAL
LINE (R)
LINE (L)
LINE
P IN P
P IN P REV.
TUNER (L)
TUNER (R)
AUDIO I/O
SYS.CON.
To SSA PG553
PG454
METER(L)
METER(R)
AUDIO(L)
AUDIO(R)
MUTE
AUDIO(L)
AUDIO(R)
GND
PHONE(L)
PHONE(R)
To AUDIO I/O PG554
IC401 BA7720S
IC402 M51131L
IC403 M5218L
IC404 M51659L
IC405 M5218L
IC451 M5218L
IC452 M5218L
Q401R 2SC1740S
Q401L 2SC1740S
Q402 2SC1740S
Q403R 2SC2784E
Q403L 2SC2784E
Q404 RT1P441S
ZD401 HZS6-A3
ZD402 HZS6-A3
ZD403 HZS6-A3
D401 1SS254
D402 1SS254
MPX LPF
CP401R
CP401L
ALC
INPUT AMP
OP-1R
OP-2R
OP-1L
OP-2L
PEAK DET
WEIGHTING
VCA
BUF
VCA CONT.
MODE CONT.
REG
V. REF FILT.
BAL VOL
PASS VCA
AGC 1
AGC 2
※ ONE VOLTAGE : PB OR REC MODE.
TWO VOLTAGES : PB AND (REC) MODE.
E
D
C
B
A
1
2
3
4
5
6
7
8


ZD401
IC405
Q401L
IC403
R434L
IC402
PG451
Q401R
To SSA PG551
IC405
IC403
IC402


IC401
ZD402
Q401R
2SC1740S
MPX LPF
CP401R
REC
PB
ALC
INPUT AMP
OP-IR
OP-2R
OP-2L
OP-IL
PEAK DET
WEIGHT-ING
VCA
BUF
5V
Rch B+
Lch B+
CP401L
Q401L
2SC1740S
Q402
2SC1740S
D401
1SS254
IC451
M5218L
IC452
M5218L
PG454
METER(L)
METER(R)
AUDIO(L)
AUDIO(R)
MUTE
AUDIO(L)
AUDIO(R)
GND
PHONE(L)
PHONE(R)
To AUDIO I/O PG554
Q403R
2SC2784E
Q404
RTIP441S
Q403L
2SC2784E
AUDIO NR P.C.B


IC403
R434L
IC405
Q401L
IC452
Q404
Q403R
IC404
Q403L
IC402
Q402
IC401
D401
ZD403
ZD402
IC451
D402
PG451
PG452
PG454
PG453
To SSA PG553
Q401R
AUDIO NR P.C.B
To SSA PG551
To SSA PG552
To SSA PG554
IC405
IC403
IC402
IC401
IC452
IC451
IC404

※ ONE VOLTAGE : PB OR REC MODE.
TWO VOLTAGES : PB AND (REC) MODE.

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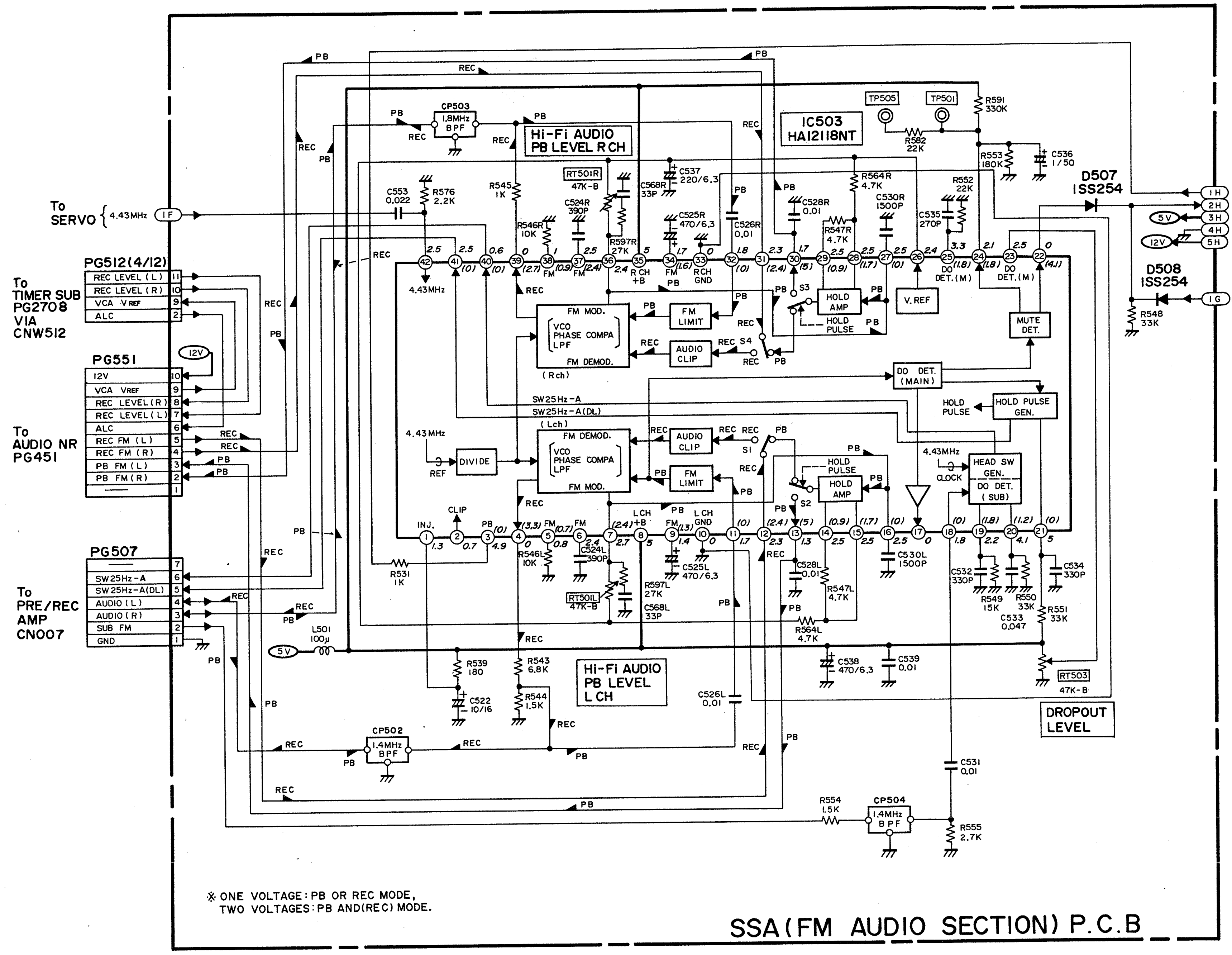
RF CONVERTER (DSW)	5-66


To SERVO
4.43MHz
To TIMER SUB PG2708 VIA CNW512
PG512(4/12)
REC LEVEL (L)
REC LEVEL (R)
VCA VREF
ALC
PG551
12V
To AUDIO NR PG451
REC FM (L)
REC FM (R)
PB FM (L)
PB FM (R)
PG507
To PRE/REC AMP CN007
SW25Hz-A
SW25Hz-A(DL)
AUDIO (L)
AUDIO (R)
SUB FM
GND
CP503 1.8MHz BPF
Hi-Fi AUDIO PB LEVEL RCH
IC503 HA12118NT
TP505
TP501
D507 1SS254
D508 1SS254
PLAY
Hi-Fi MUTE
5V
GND
12V
To AUDIO I/O
M.CUT + TRICK PB
To SYSTEM CONTROL
FM MOD.
VCO PHASE COMPA LPF
FM DEMOD.
FM LIMIT
AUDIO CLIP
HOLD AMP
HOLD PULSE
V.REF
MUTE DET.
DO DET. (MAIN)
HOLD PULSE GEN.
HEAD SW GEN.
DO DET. (SUB)
DIVIDE
Hi-Fi AUDIO PB LEVEL L CH
DROPOUT LEVEL
CP502 1.4MHz BPF
CP504 1.4MHz BPF
※ ONE VOLTAGE: PB OR REC MODE, TWO VOLTAGES: PB AND(REC) MODE.
SSA(FM AUDIO SECTION) P.C.B

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JACK	5-27
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AUDIO NR	5-35
FM AUDIO	5-38
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SERVO	5-41
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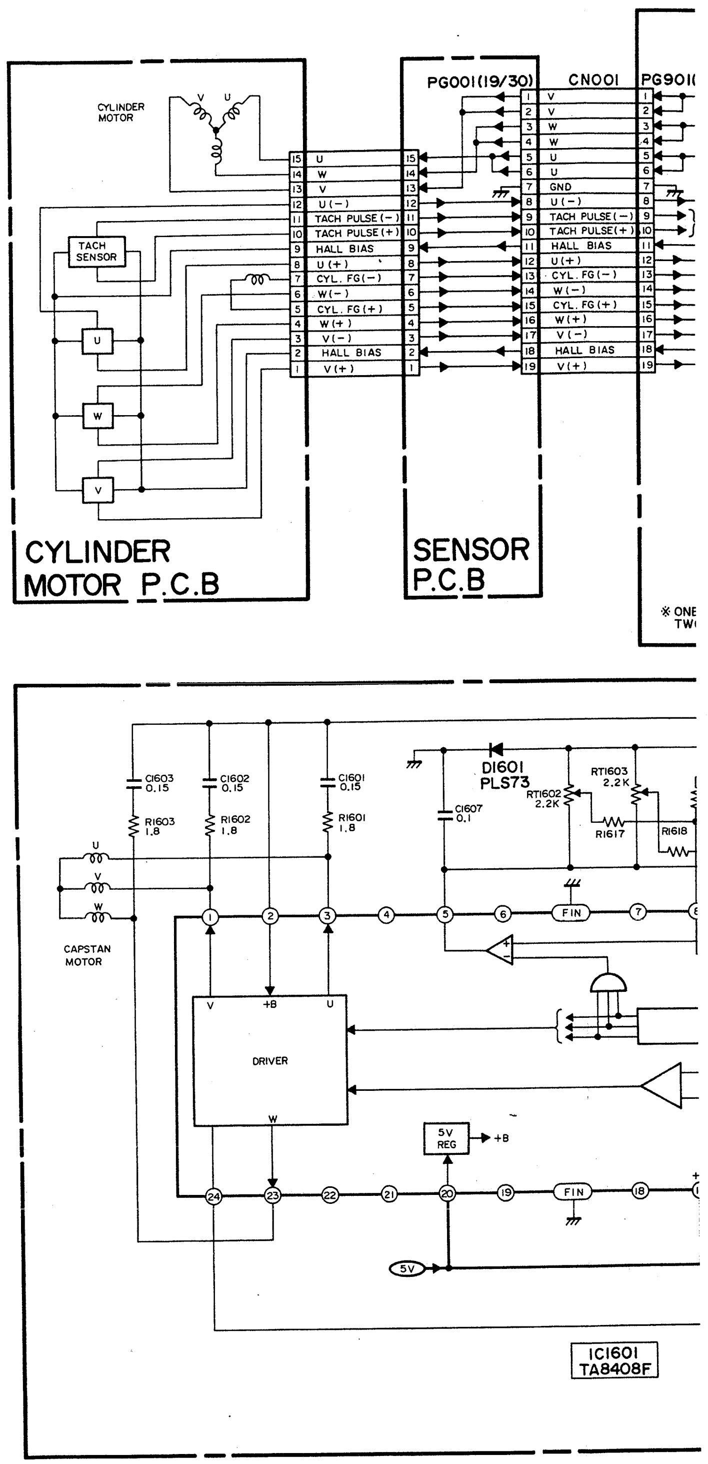
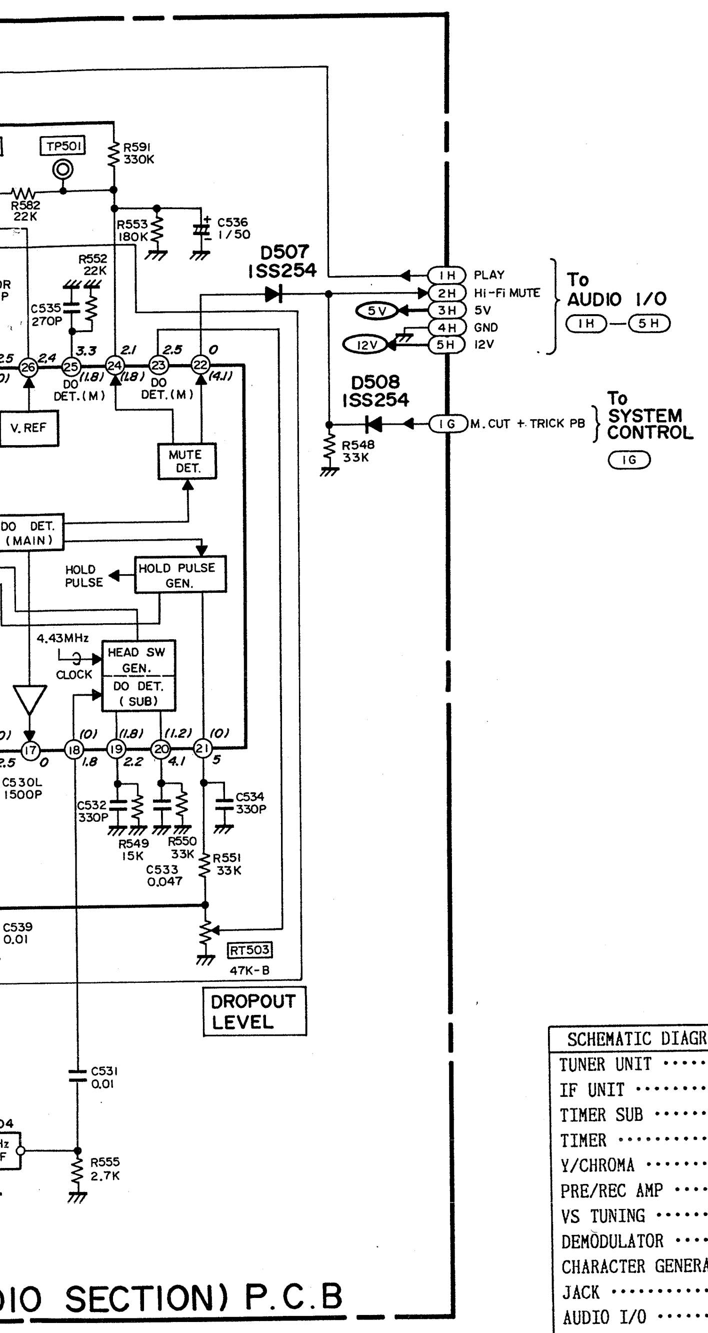
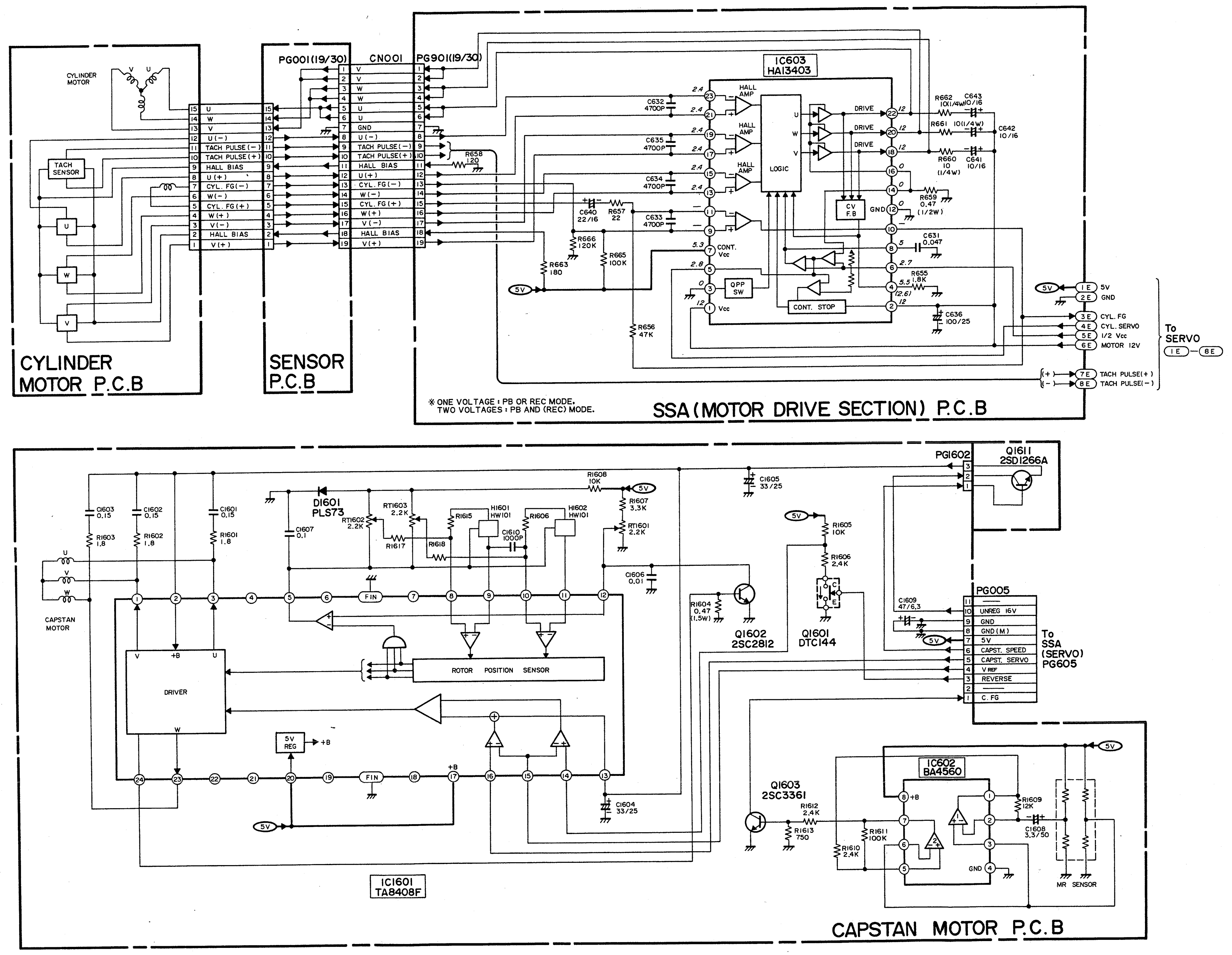
ENCODE/DECODE/MEMORY	5-53
CONTROL	5-56
REGULATOR	5-62
RF CONVERTER (AU)	5-65
RF CONVERTER (DSW)	5-66


CYLINDER MOTOR
TACH SENSOR
PG001(19/30)
CN001
TACH PULSE (−)
TACH PULSE (+)
HALL BIAS
CYL. FG(−)
CYL. FG(+)
CYLINDER MOTOR P.C.B
SENSOR P.C.B
CAPSTAN MOTOR
D1601 PLS73
DRIVER
5V REG
FIN
IC1601 TA8408F

MOTOR DRIVE


TP501
R591 330K
R582 22K
R553 180K
C536 1/50
R552 22K
C535 270P
D507 1SS254
1H PLAY
2H Hi-Fi MUTE
3H 5V
4H GND
5H 12V
5V
12V
To AUDIO I/O
1H — 5H
D508 1SS254
1G M.CUT + TRICK PB
To SYSTEM CONTROL
1G
R548 33K
DO DET.(M)
DO DET.(M)
V.REF
MUTE DET.
DO DET.(MAIN)
HOLD PULSE
HOLD PULSE GEN.
4.43MHz
CLOCK
HEAD SW GEN.
DO DET.(SUB)
C530L 1500P
C532 330P
R549 15K
R550 33K
C533 0.047
R551 33K
C534 330P
C539 0.01
RT503 47K-B
DROPOUT LEVEL
C531 0.01
R555 2.7K
IO SECTION) P.C.B


CYLINDER MOTOR
TACH SENSOR
CYLINDER MOTOR P.C.B
SENSOR P.C.B
PG001(19/30)
CN001
PG901(19/30)
U
W
V
U(−)
TACH PULSE(−)
TACH PULSE(+)
HALL BIAS
U(+)
CYL. FG(−)
W(−)
CYL. FG(+)
W(+)
V(−)
HALL BIAS
V(+)
GND
IC603 HA13403
HALL AMP
LOGIC
DRIVE
CV F.B
GND
CONT. Vcc
QPP SW
CONT. STOP
Vcc
C632 4700P
C635 4700P
C634 4700P
C633 4700P
C640 22/16
R657 22
R658 120
R666 120K
R665 100K
R663 180
R656 47K
R662 10(1/4W)
C643 10/16
R661 10(1/4W)
C642 10/16
R660 10 (1/4W)
C641 10/16
R659 0.47 (1/2W)
C631 0.047
R655 1.8K
C636 100/25
1E 5V
2E GND
3E CYL. FG
4E CYL. SERVO
5E 1/2 Vcc
6E MOTOR 12V
7E TACH PULSE(+)
8E TACH PULSE(−)
To SERVO
1E — 8E
※ONE VOLTAGE : PB OR REC MODE.
TWO VOLTAGES : PB AND (REC) MODE.
SSA(MOTOR DRIVE SECTION) P.C.B
CAPSTAN MOTOR
C1603 0.15
C1602 0.15
C1601 0.15
R1603 1.8
R1602 1.8
R1601 1.8
D1601 PLS73
C1607 0.1
RT1602 2.2K
RT1603 2.2K
R1617
R1618
R1615
R1606
H1601 HW101
H1602 HW101
C1610 1000P
R1608 10K
R1607 3.3K
RT1601 2.2K
C1605 33/25
C1606 0.01
FIN
ROTOR POSITION SENSOR
DRIVER
5V REG
C1604 33/25
IC1601 TA8408F
R1604 0.47 (1.5W)
Q1602 2SC2812
R1605 10K
R1606 2.4K
Q1601 DTC144
PG1602
Q1611 2SD1266A
PG005
C1609 47/6.3
UNREG 16V
GND
GND(M)
5V
CAPST. SPEED
CAPST. SERVO
V REF
REVERSE
C. FG
To SSA (SERVO) PG605
Q1603 2SC3361
R1612 2.4K
R1613 750
R1610 2.4K
R1611 100K
IC1602 BA4560
R1609 12K
C1608 3.3/50
MR SENSOR
CAPSTAN MOTOR P.C.B
5
6
7
8
9
10
11
12

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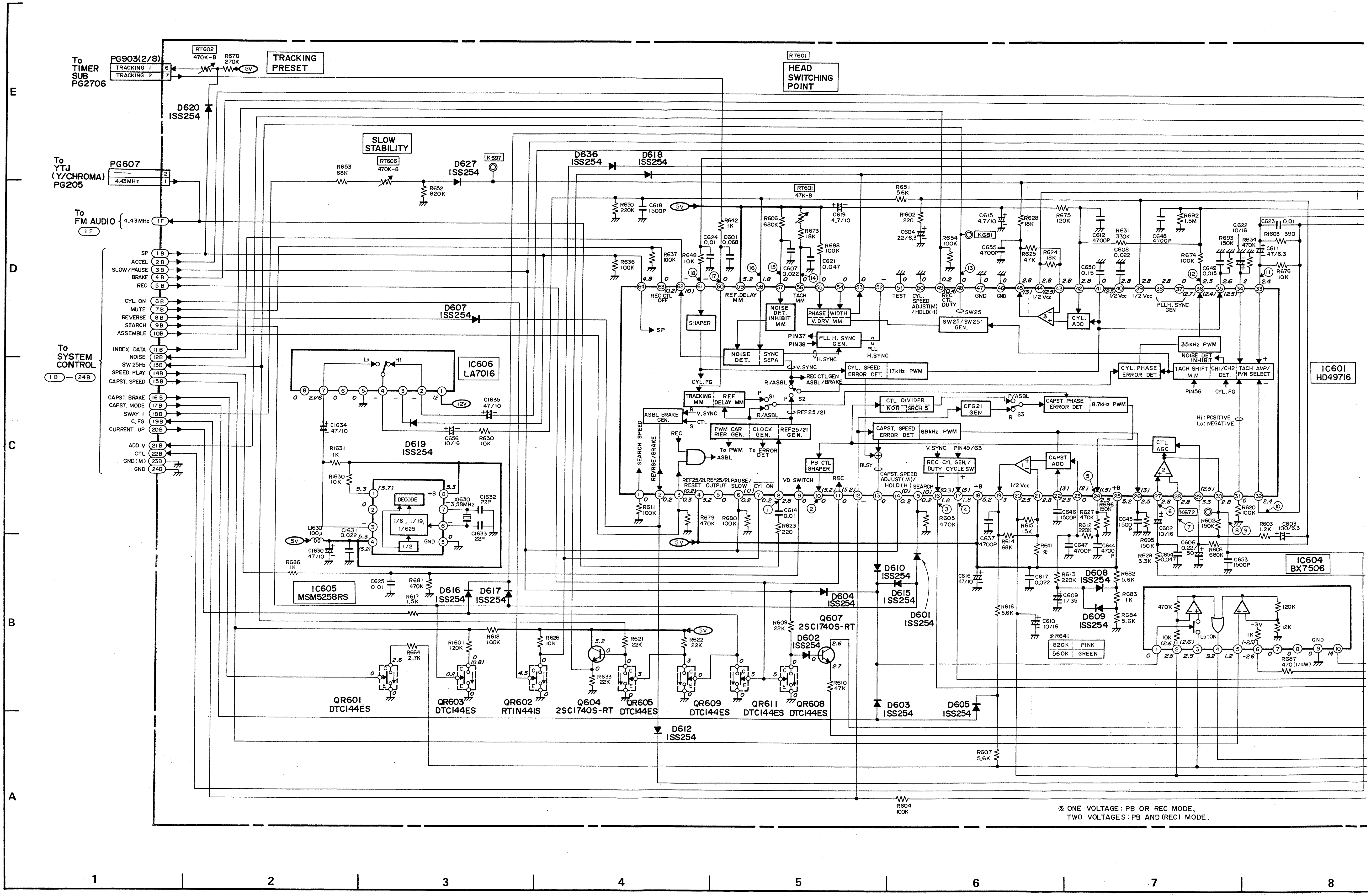
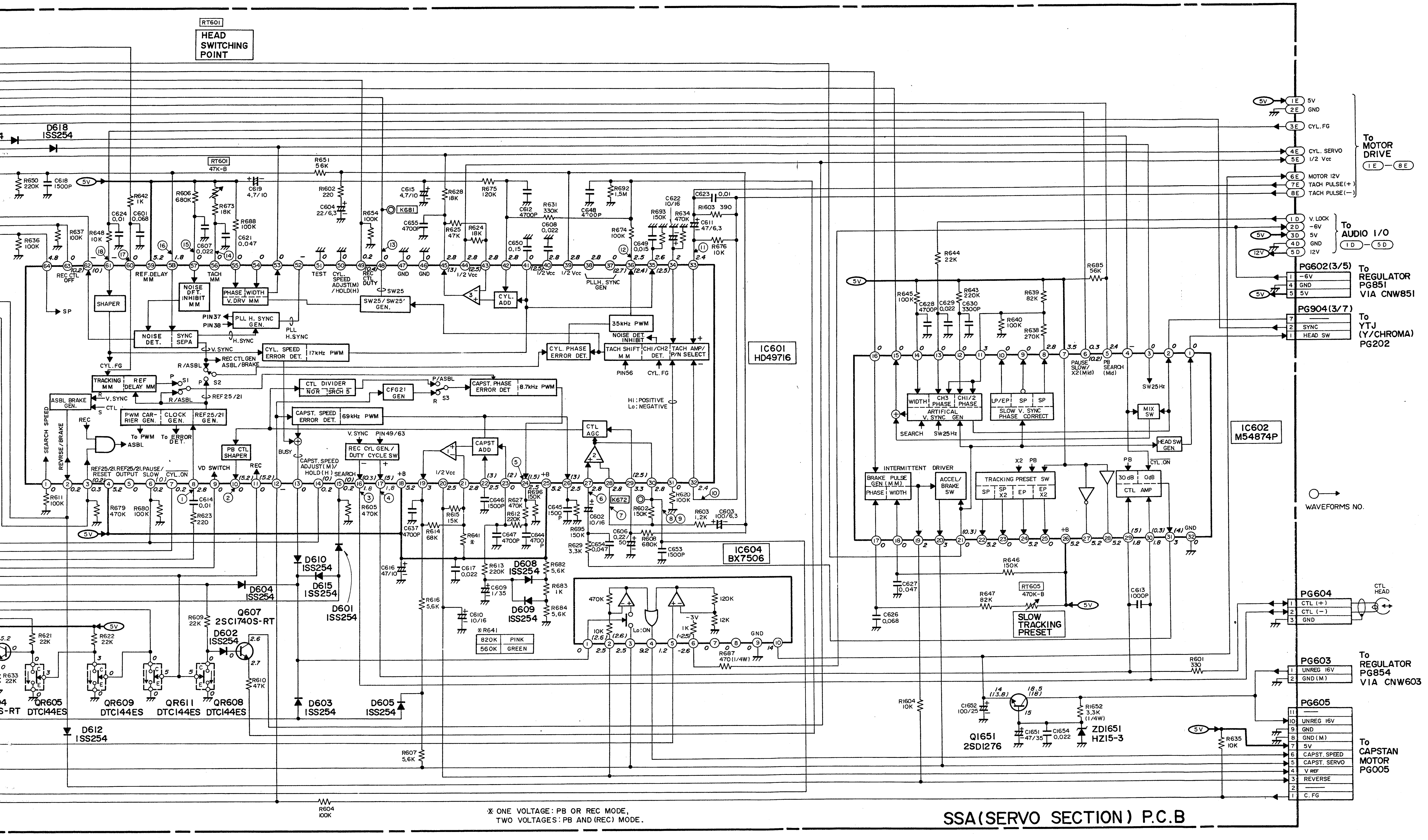
RF CONVERTER (DSW)	5-66

SERVO



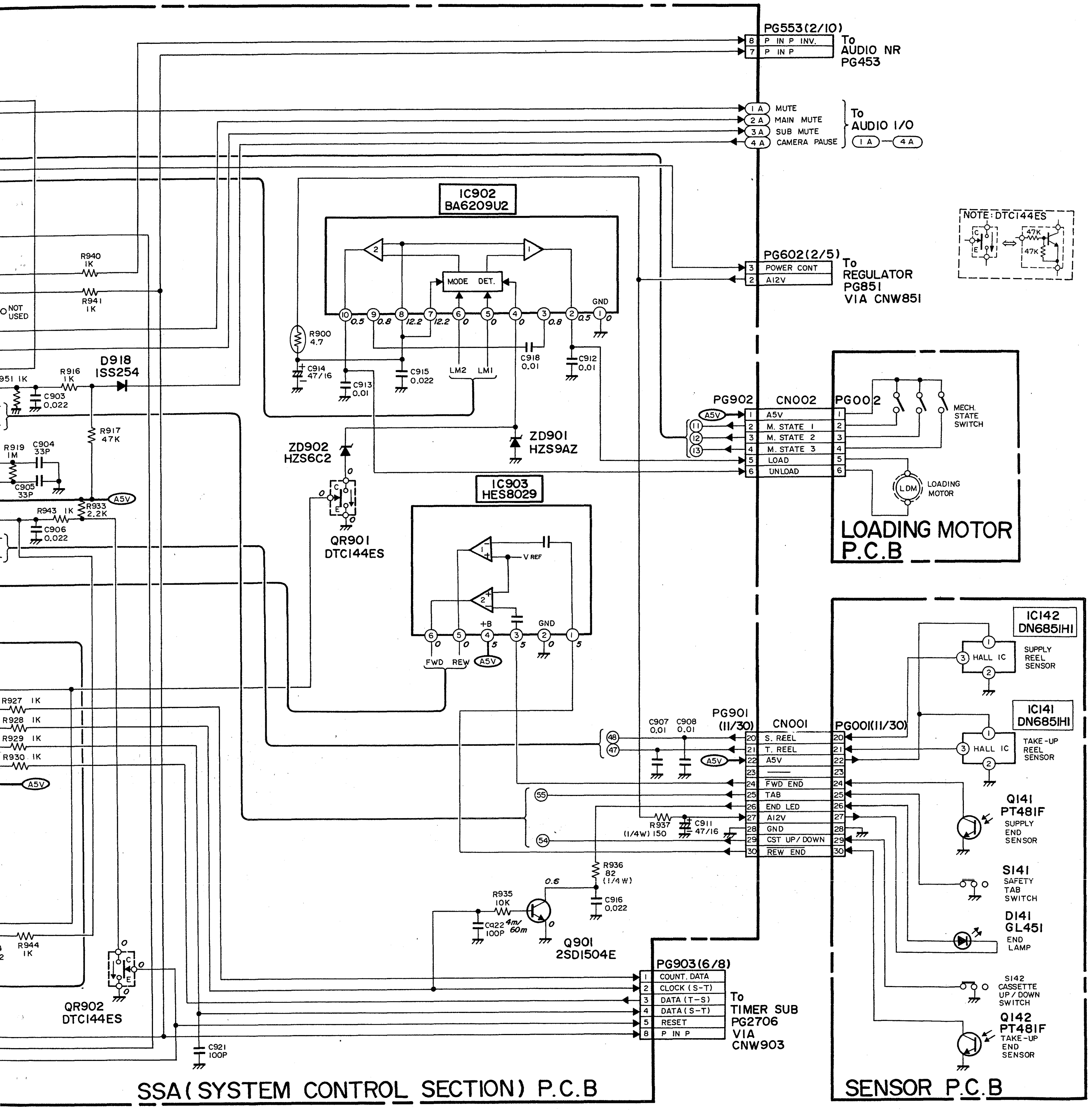
To TIMER SUB PG2706
PG903(2/8)
TRACKING 1
TRACKING 2
RT602 470K-B
R670 270K
5V
TRACKING PRESET
D620 1SS254
To YTJ (Y/CHROMA) PG205
PG607
4.43MHz
To FM AUDIO
To SYSTEM CONTROL
SP
ACCEL
SLOW/PAUSE
BRAKE
REC
CYL. ON
MUTE
REVERSE
SEARCH
ASSEMBLE
INDEX DATA
NOISE
SW 25Hz
SPEED PLAY
CAPST. SPEED
CAPST. BRAKE
CAPST. MODE
SWAY 1
C.FG
CURRENT UP
ADD V
CTL
GND(M)
GND
SLOW STABILITY
RT606 470K-B
R653 68K
R652 820K
D627 1SS254
K697
D607 1SS254
D636 1SS254
D618 1SS254
RT601 HEAD SWITCHING POINT
RT601 47K-B
IC606 LA7016
IC605 MSM5258RS
D619 1SS254
DECODE
1/6, 1/19, 1/625
1/2
X1630 3.58MHz
D616 1SS254
D617 1SS254
D610 1SS254
D615 1SS254
D604 1SS254
D601 1SS254
D602 1SS254
D603 1SS254
D605 1SS254
D612 1SS254
D608 1SS254
D609 1SS254
Q607 2SC1740S-RT
Q604 2SC1740S-RT
QR601 DTC144ES
QR603 DTC144ES
QR602 RTIN44IS
QR605 DTC144ES
QR609 DTC144ES
QR611 DTC144ES
QR608 DTC144ES
IC601 HD49716
IC604 BX7506
SHAPER
NOISE DFT. INHIBIT MM
PHASE WIDTH V.DRV MM
SW25/SW25' GEN.
CYL. ADD
PLL H. SYNC GEN.
NOISE DET.
SYNC SEPA
CYL. SPEED ERROR DET.
17kHz PWM
35kHz PWM
NOISE DET INHIBIT
CYL. PHASE ERROR DET.
TACH SHIFT MM
CH1/CH2 DET.
TACH AMP/ P/N SELECT
TRACKING MM
REF DELAY MM
ASBL BRAKE GEN.
CTL DIVIDER NOR SRCH 5
CFG21 GEN
CAPST. PHASE ERROR DET
8.7kHz PWM
PWM CARRIER GEN.
CLOCK GEN.
REF25/21 GEN.
CAPST. SPEED ERROR DET.
69kHz PWM
PB CTL SHAPER
REC CYL GEN./ DUTY CYCLE SW
CAPST ADD
CTL AGC
Hi: POSITIVE
Lo: NEGATIVE
K681
K672
R641
820K PINK
560K GREEN
1
2
3
4
5
6
7
8
A
B
C
D
E

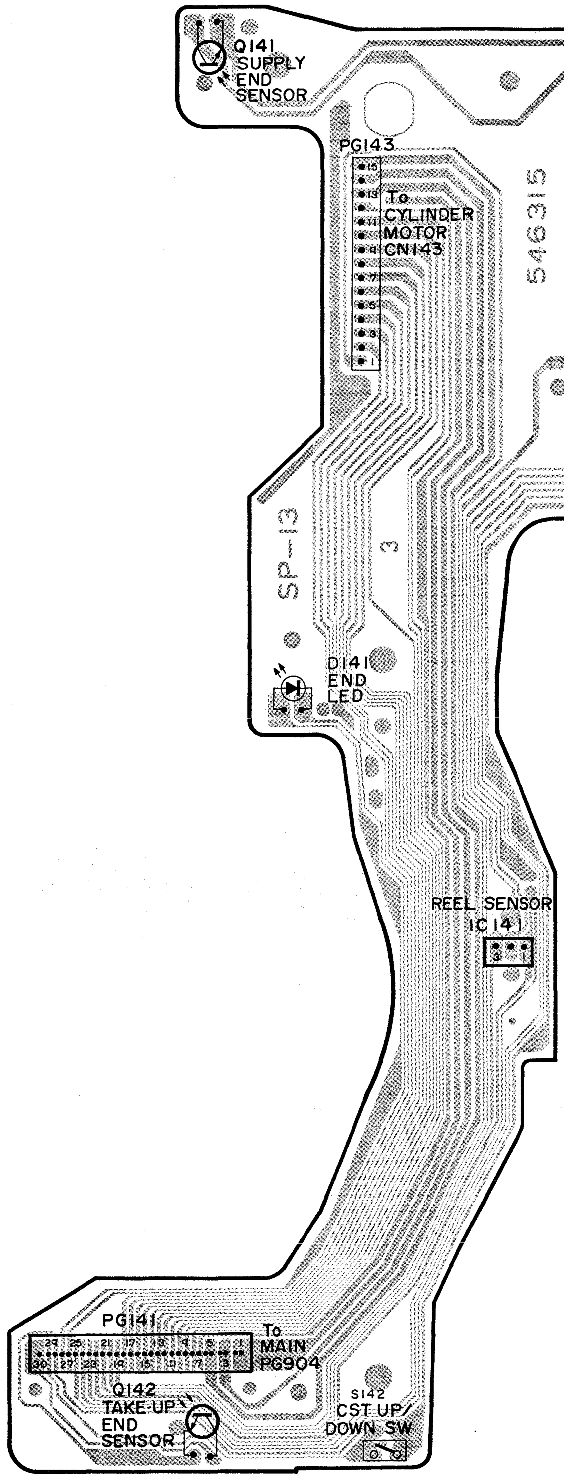
※ ONE VOLTAGE: PB OR REC MODE,
TWO VOLTAGES: PB AND (REC) MODE.


RT601
HEAD SWITCHING POINT
IC601
HD49716
IC602
M54874P
IC604
BX7506
Q607
2SC1740S-RT
Q1651
2SD1276
ZD1651
HZ15-3
D618 ISS254
D604 ISS254
D602 ISS254
D610 ISS254
D615 ISS254
D601 ISS254
D608 ISS254
D609 ISS254
D603 ISS254
D605 ISS254
D612 ISS254
QR605 DTC144ES
QR609 DTC144ES
QR611 DTC144ES
QR608 DTC144ES
SHAPER
NOISE DET. INHIBIT MM
PHASE WIDTH V.DRV MM
SW25/SW25' GEN.
CYL. ADD
PLL H. SYNC GEN.
NOISE DET.
SYNC SEPA
35kHz PWM
NOISE DET INHIBIT
CYL. PHASE ERROR DET.
TACH SHIFT MM
CH1/CH2 DET.
TACH AMP/ P/N SELECT
CYL. SPEED ERROR DET.
17kHz PWM
TRACKING MM
REF DELAY MM
ASBL BRAKE GEN.
PWM CARRIER GEN.
CLOCK GEN.
REF25/21 GEN.
CTL DIVIDER NOR SRCH 5
CFG21 GEN
CAPST. PHASE ERROR DET
8.7kHz PWM
CAPST. SPEED ERROR DET.
69kHz PWM
PB CTL SHAPER
REC CYL GEN./ DUTY CYCLE SW
CAPST ADD
CTL AGC
WIDTH
CH3 PHASE
CH1/2 PHASE
ARTIFICAL V. SYNC GEN
LP/EP SP SP
SLOW V. SYNC PHASE CORRECT
MIX SW
HEAD SW GEN.
BRAKE PULSE GEN (M.M)
PHASE WIDTH
ACCEL/ BRAKE SW
TRACKING PRESET SW
SP SP X2 EP EP X2
30dB 0dB
CTL AMP
SLOW TRACKING PRESET
WAVEFORMS NO.
To MOTOR DRIVE
To AUDIO I/O
PG602(3/5)
To REGULATOR PG851 VIA CNW851
PG904(3/7)
To YTJ (Y/CHROMA) PG202
PG604
CTL HEAD
PG603
To REGULATOR PG854 VIA CNW603
PG605
To CAPSTAN MOTOR PG005
CYL. FG
CYL. SERVO
1/2 Vcc
MOTOR 12V
TACH PULSE(+)
TACH PULSE(−)
V. LOCK
HEAD SW
SYNC
CTL (+)
CTL (−)
UNREG 16V
GND (M)
CAPST. SPEED
CAPST. SERVO
V REF
REVERSE
C. FG
4
5
6
7
8
9
10
11

※ ONE VOLTAGE: PB OR REC MODE,
TWO VOLTAGES: PB AND (REC) MODE.

SSA(SERVO SECTION) P.C.B


PG553(2/10)
P IN P INV.
P IN P
To AUDIO NR PG453
MUTE
MAIN MUTE
SUB MUTE
CAMERA PAUSE
To AUDIO I/O
IC902
BA6209U2
MODE DET.
GND
PG602(2/5)
POWER CONT
A12V
To REGULATOR PG851 VIA CNW851
NOTE: DTC144ES
47K
R940 1K
R941 1K
NOT USED
R900 4.7
C914 47/16
C913 0.01
C915 0.022
LM2
LM1
C918 0.01
C912 0.01
D918 ISS254
R916 1K
C903 0.022
R917 47K
R919 1M
C904 33P
C905 33P
R943 1K
R933 2.2K
C906 0.022
ZD902 HZS6C2
ZD901 HZS9AZ
QR901 DTC144ES
PG902
CN002
PG002
A5V
M. STATE 1
M. STATE 2
M. STATE 3
LOAD
UNLOAD
MECH. STATE SWITCH
LDM
LOADING MOTOR
LOADING MOTOR P.C.B
IC903
HES8029
V REF
+B
GND
FWD
REW
R927 1K
R928 1K
R929 1K
R930 1K
C907 0.01
C908 0.01
PG901 (11/30)
CN001
PG001(11/30)
S. REEL
T. REEL
A5V
FWD END
TAB
END LED
A12V
GND
CST UP/DOWN
REW END
R937 (1/4W) 150
C911 47/16
R936 82 (1/4W)
C916 0.022
R935 10K
C922 100P
Q901 2SD1504E
R944 1K
QR902 DTC144ES
C921 100P
PG903(6/8)
COUNT. DATA
CLOCK (S-T)
DATA (T-S)
DATA (S-T)
RESET
P IN P
To TIMER SUB PG2706 VIA CNW903
IC142 DN6851H1
HALL IC
SUPPLY REEL SENSOR
IC141 DN6851H1
TAKE-UP REEL SENSOR
Q141 PT481F
SUPPLY END SENSOR
S141
SAFETY TAB SWITCH
D141 GL451
END LAMP
S142
CASSETTE UP/DOWN SWITCH
Q142 PT481F
TAKE-UP END SENSOR
SSA (SYSTEM CONTROL SECTION) P.C.B
SENSOR P.C.B


Q141 SUPPLY END SENSOR
S141 SAFETY TAB SW
PG143
To CYLINDER MOTOR CN143
546315
SP-13
D141 END LED
REEL SENSOR IC141
PG141
To MAIN PG904
Q142 TAKE-UP END SENSOR
S142 CST UP/DOWN SW

SENSOR P.C.B

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AUDIO NR ···············	5-35
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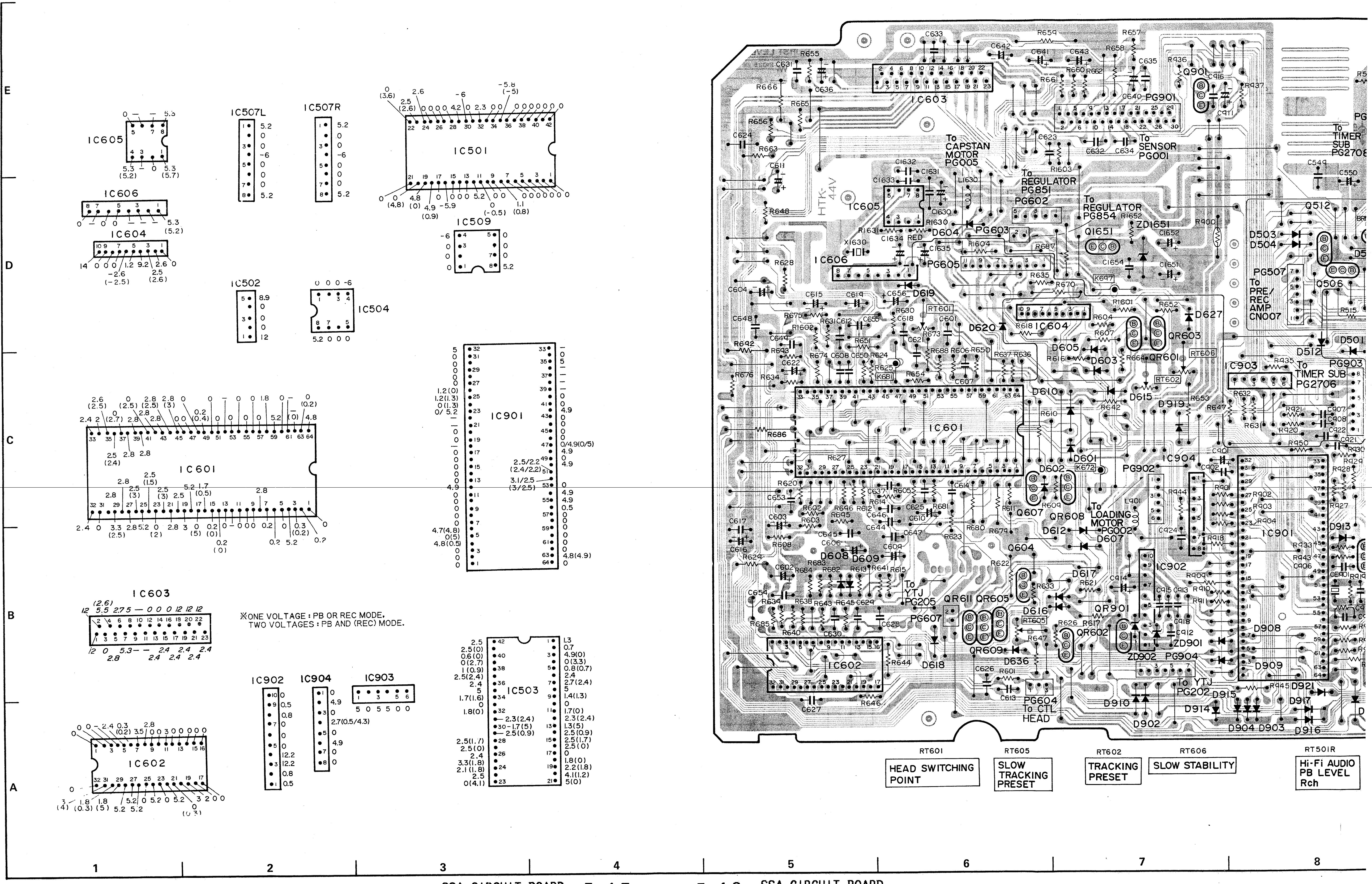
RF CONVERTER (DSW) ·····	5-66

SSA CIRCUIT BOARD


E
D
C
B
A
1
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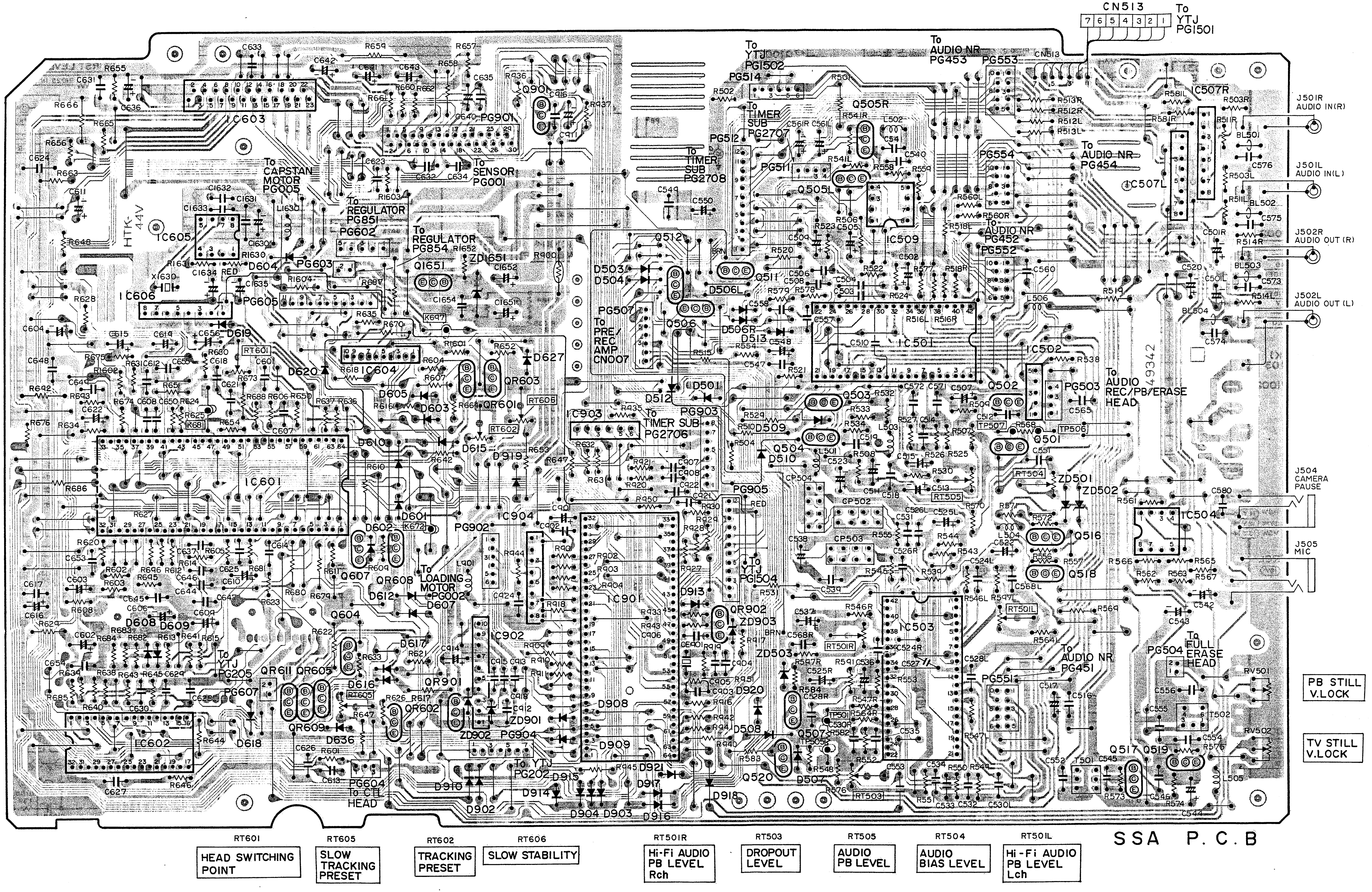
3
4
5
6
7
8
IC605
IC606
IC604
IC507L
IC507R
IC501
IC509
IC502
IC504
IC601
IC901
IC603
IC602
IC902
IC904
IC903
IC503
To CAPSTAN MOTOR PG005
To REGULATOR PG851
PG602
To REGULATOR PG854
To SENSOR PG001
PG901
To TIMER SUB PG2708
To PRE/REC AMP CN007
PG507
To TIMER SUB PG2706
PG903
To LOADING MOTOR PG002
To YTJ PG205
PG607
PG604 To CTL HEAD
To YTJ PG202
PG904
PG902
PG603
PG605
HTK-44V
RT601
HEAD SWITCHING POINT
RT605
SLOW TRACKING PRESET
RT602
TRACKING PRESET
RT606
SLOW STABILITY
RT501R
Hi-Fi AUDIO PB LEVEL Rch

※ONE VOLTAGE : PB OR REC MODE.
TWO VOLTAGES : PB AND (REC) MODE.


CN513
To YTJ PG1501
To YTJ PG1502
To AUDIO NR PG453
PG553
PG514
To TIMER SUB PG2707
To TIMER SUB PG2708
To CAPSTAN MOTOR PG005
To SENSOR PG001
To REGULATOR PG851
To REGULATOR PG854
PG901
PG602
PG603
PG605
To AUDIO NR PG454
To AUDIO NR PG452
PG552
PG554
To PRE/REC AMP CN007
To TIMER SUB PG2706
To YTJ PG1504
To LOADING MOTOR PG002
To AUDIO REC/PB/ERASE HEAD
PG503
To FULL ERASE HEAD
PG504
To AUDIO NR PG451
PG551
To YTJ PG202
PG904
To YTJ G205
PG607
PG604
To CTL HEAD
IC601
IC602
IC603
IC604
IC605
IC606
IC901
IC902
IC903
IC904
IC501
IC502
IC503
IC504
IC505
IC507L
IC509
J501R AUDIO IN (R)
J501L AUDIO IN (L)
J502R AUDIO OUT (R)
J502L AUDIO OUT (L)
J504 CAMERA PAUSE
J505 MIC
HTK-44V
49342
PB STILL V.LOCK
TV STILL V.LOCK
RV501
RV502
SSA P.C.B
RT601 HEAD SWITCHING POINT
RT605 SLOW TRACKING PRESET
RT602 TRACKING PRESET
RT606 SLOW STABILITY
RT501R Hi-Fi AUDIO PB LEVEL Rch
RT503 DROPOUT LEVEL
RT505 AUDIO PB LEVEL
RT504 AUDIO BIAS LEVEL
RT501L Hi-Fi AUDIO PB LEVEL Lch
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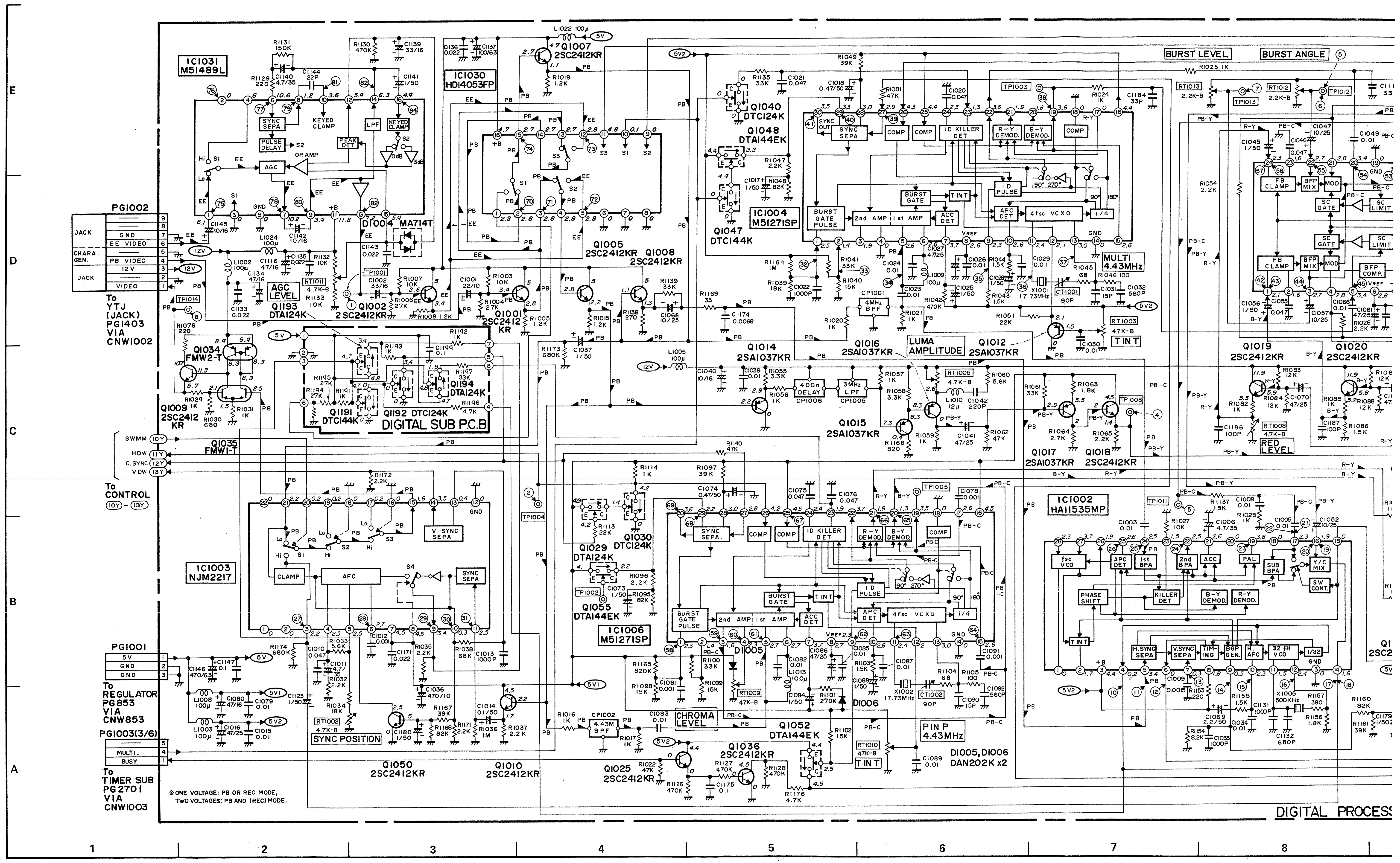
VIDEO I/O PROCESS



IC1031 M51489L
IC1030 HD14053FP
IC1004 M51271SP
IC1003 NJM2217
IC1006 M51271SP
IC1002 HA11535MP
Q1007 2SC2412KR
Q1040 DTC124K
Q1048 DTA144EK
Q1047 DTC144K
Q1193 DTA124K
Q1002 2SC2412KR
Q1001 2SC2412 KR
Q1005 2SC2412KR
Q1008 2SC2412KR
Q1034 FMW2-T
Q1009 2SC2412 KR
Q1035 FMW1-T
Q1191 DTC144K
Q1192 DTC124K
Q1194 DTA124K
DIGITAL SUB P.C.B
Q1014 2SA1037KR
Q1016 2SA1037KR
Q1012 2SA1037KR
Q1015 2SA1037KR
Q1017 2SA1037KR
Q1018 2SC2412KR
Q1019 2SC2412KR
Q1020 2SC2412KR
Q1029 DTA124K
Q1030 DTC124K
Q1055 DTA144EK
Q1050 2SC2412KR
Q1010 2SC2412KR
Q1025 2SC2412KR
Q1036 2SC2412KR
Q1052 DTA144EK
D1004 MA714T
D1005, D1006 DAN202K x2
D1006
MULTI 4.43MHz
PIN P 4.43MHz
BURST LEVEL
BURST ANGLE
AGC LEVEL
LUMA AMPLITUDE
TINT
RED LEVEL
CHROMA LEVEL
SYNC POSITION
DIGITAL PROCESS
SYNC SEPA
PULSE DELAY
KEYED CLAMP
PEAK DET
LPF
AGC
OP.AMP
COMP
ID KILLER DET
R-Y DEMOD.
B-Y DEMOD.
ID PULSE
BURST GATE
BURST GATE PULSE
2nd AMP
1st AMP
ACC DET
APC DET
4fsc VCXO
1/4
FB CLAMP
BFP MIX
MOD
SC GATE
SC LIMIT
BFP COMP.
V-SYNC SEPA
CLAMP
AFC
fsc VCO
1st BPA
2nd BPA
ACC
PAL
SUB BPA
Y/C MIX
SW CONT.
PHASE SHIFT
KILLER DET
H.SYNC SEPA
V.SYNC SEPA
TIM-ING
BGP GEN.
H. AFC
32 fH VCO
1/32
400n DELAY
3MHz LPF
4MHz BPF
4.43M BPF
PG1002
JACK
CHARA. GEN.
GND
EE VIDEO
PB VIDEO
12V
VIDEO
To YTJ (JACK) PG1403 VIA CNW1002
SWMM
HDW
C.SYNC
VDW
To CONTROL (10Y)-(13Y)
PG1001
5V
GND
To REGULATOR PG853 VIA CNW853
PG1003(3/6)
MULTI.
BUSY
To TIMER SUB PG2701 VIA CNW1003
※ONE VOLTAGE: PB OR REC MODE, TWO VOLTAGES: PB AND (REC) MODE.
E
D
C
B
A
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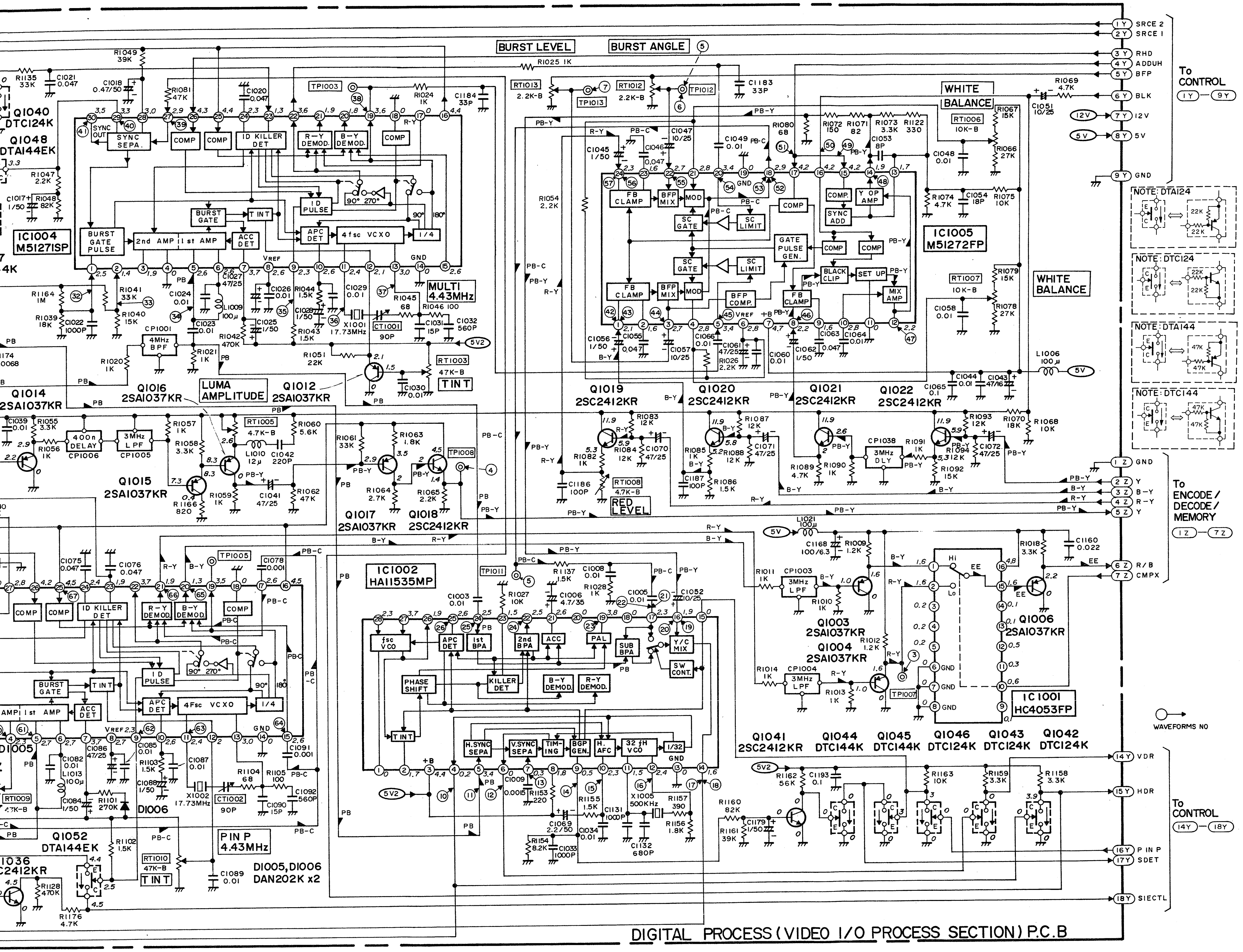
8


BURST LEVEL
BURST ANGLE
WHITE BALANCE
IC1004 M51271SP
IC1005 M51272FP
IC1002 HA11535MP
IC1001 HC4053FP
MULTI 4.43MHz
PIN P 4.43MHz
LUMA AMPLITUDE
TINT
RED LEVEL
Q1040 DTC124K
Q1048 DTA144EK
Q1014 2SA1037KR
Q1015 2SA1037KR
Q1016 2SA1037KR
Q1012 2SA1037KR
Q1017 2SA1037KR
Q1018 2SC2412KR
Q1019 2SC2412KR
Q1020 2SC2412KR
Q1021 2SC2412KR
Q1022 2SC2412KR
Q1003 2SA1037KR
Q1004 2SA1037KR
Q1006 2SA1037KR
Q1041 2SC2412KR
Q1044 DTC144K
Q1045 DTC144K
Q1046 DTC124K
Q1043 DTC124K
Q1042 DTC124K
Q1052 DTA144EK
Q1036 2SC2412KR
D1005, D1006 DAN202K x2
SRCE 2
SRCE 1
RHD
ADDUH
BFP
BLK
12V
5V
GND
To CONTROL (1Y)—(9Y)
Y
B-Y
R-Y
Y
To ENCODE/DECODE/MEMORY (1Z)—(7Z)
R/B
CMPX
VDR
HDR
P IN P
SDET
SIECTL
To CONTROL (14Y)—(18Y)
NOTE: DTA124
NOTE: DTC124
NOTE: DTA144
NOTE: DTC144
WAVEFORMS NO
DIGITAL PROCESS (VIDEO I/O PROCESS SECTION) P.C.B

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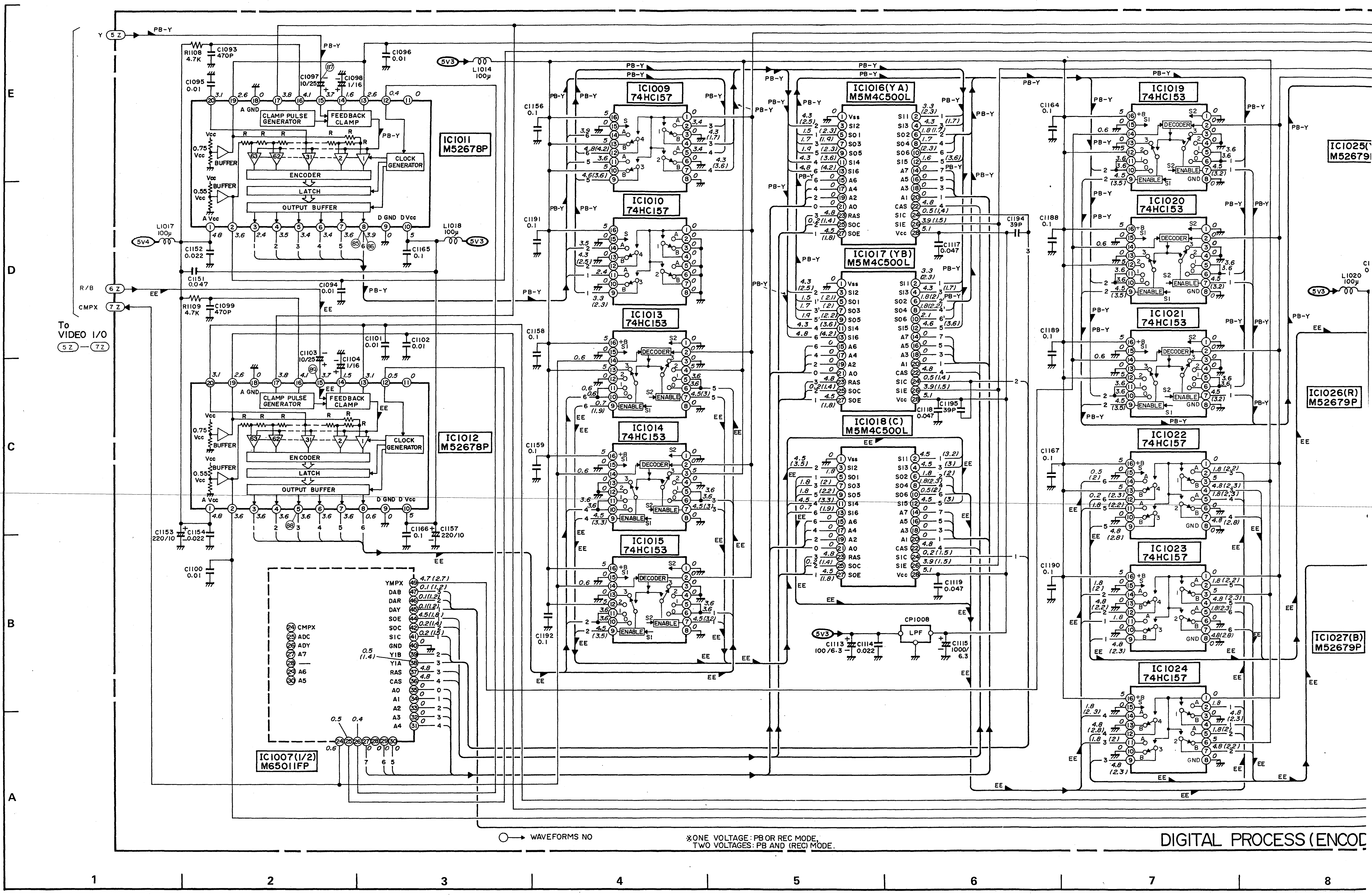
FM AUDIO	5-38
MOTOR DRIVE	5-39
SERVO	5-41
SYS. CON.	5-44
VIDEO I/O PROCESS	5-50
ENCODE/DECODE/MEMORY	5-53
CONTROL	5-56
REGULATOR	5-62
RF CONVERTER (AU)	5-65
RF CONVERTER (DSW)	5-66

5 6 7 8 9 10 11 12

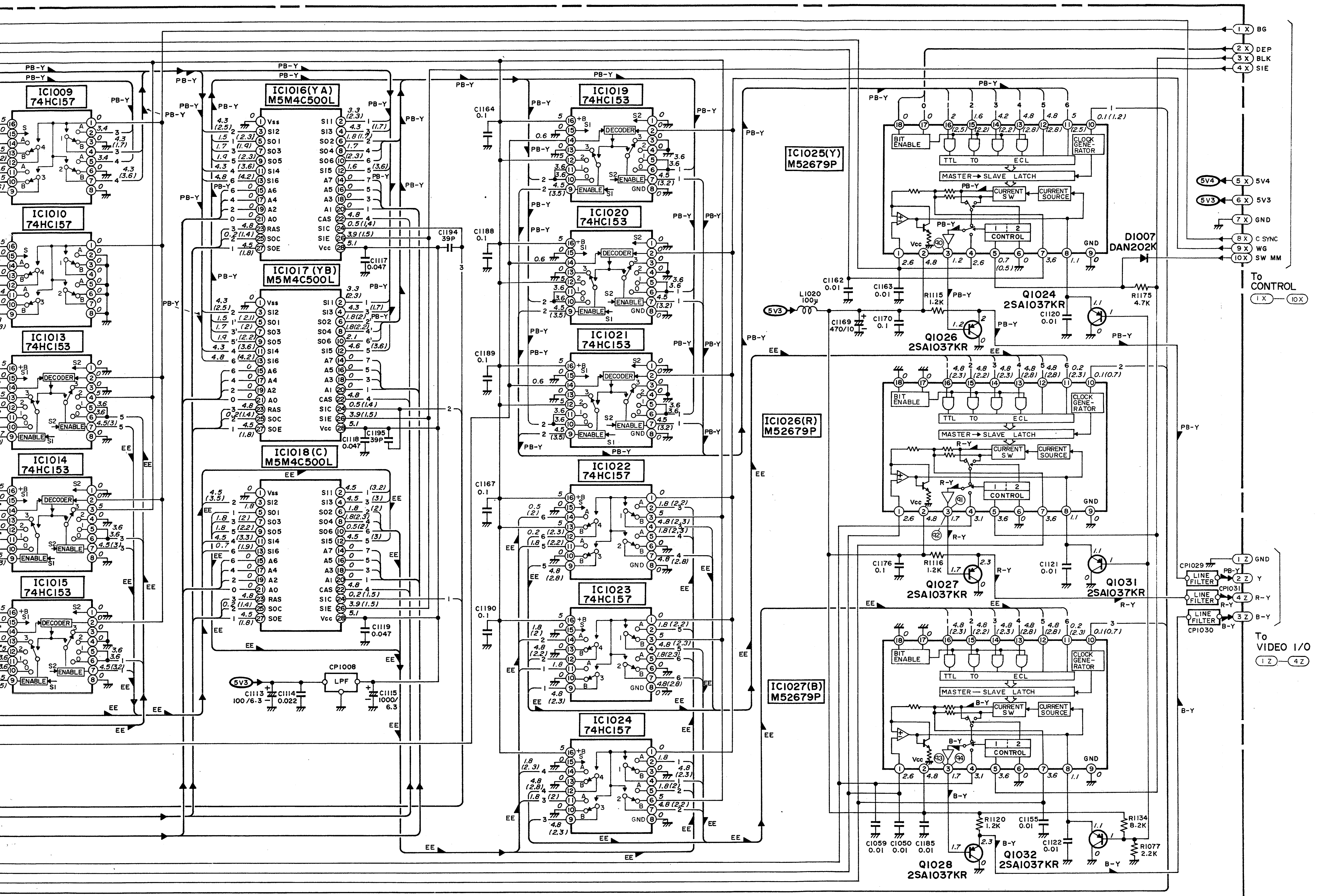
ENCODE/DECODE/MEMORY


IC1011 M52678P
IC1012 M52678P
IC1009 74HC157
IC1010 74HC157
IC1013 74HC153
IC1014 74HC153
IC1015 74HC153
IC1016(YA) M5M4C500L
IC1017 (YB) M5M4C500L
IC1018 (C) M5M4C500L
IC1019 74HC153
IC1020 74HC153
IC1021 74HC153
IC1022 74HC157
IC1023 74HC157
IC1024 74HC157
IC1025(Y M52679
IC1026(R) M52679P
IC1027(B) M52679P
IC1007(1/2) M65011FP
CP1008 LPF
CLAMP PULSE GENERATOR
FEEDBACK CLAMP
CLOCK GENERATOR
ENCODER
LATCH
OUTPUT BUFFER
BUFFER
DECODER
ENABLE
To VIDEO I/O
5Z — 7Z
Y
R/B
CMPX
PB-Y
EE
5V3
5V4
L1014 100μ
L1017 100μ
L1018 100μ
L1020 100μ
R1108 4.7K
R1109 4.7K
C1093 470P
C1099 470P
E
D
C
B
A
1
2
3
4
5
6
7
8

○→ WAVEFORMS NO

※ONE VOLTAGE: PB OR REC MODE.
TWO VOLTAGES: PB AND (REC) MODE.

DIGITAL PROCESS(ENCOD

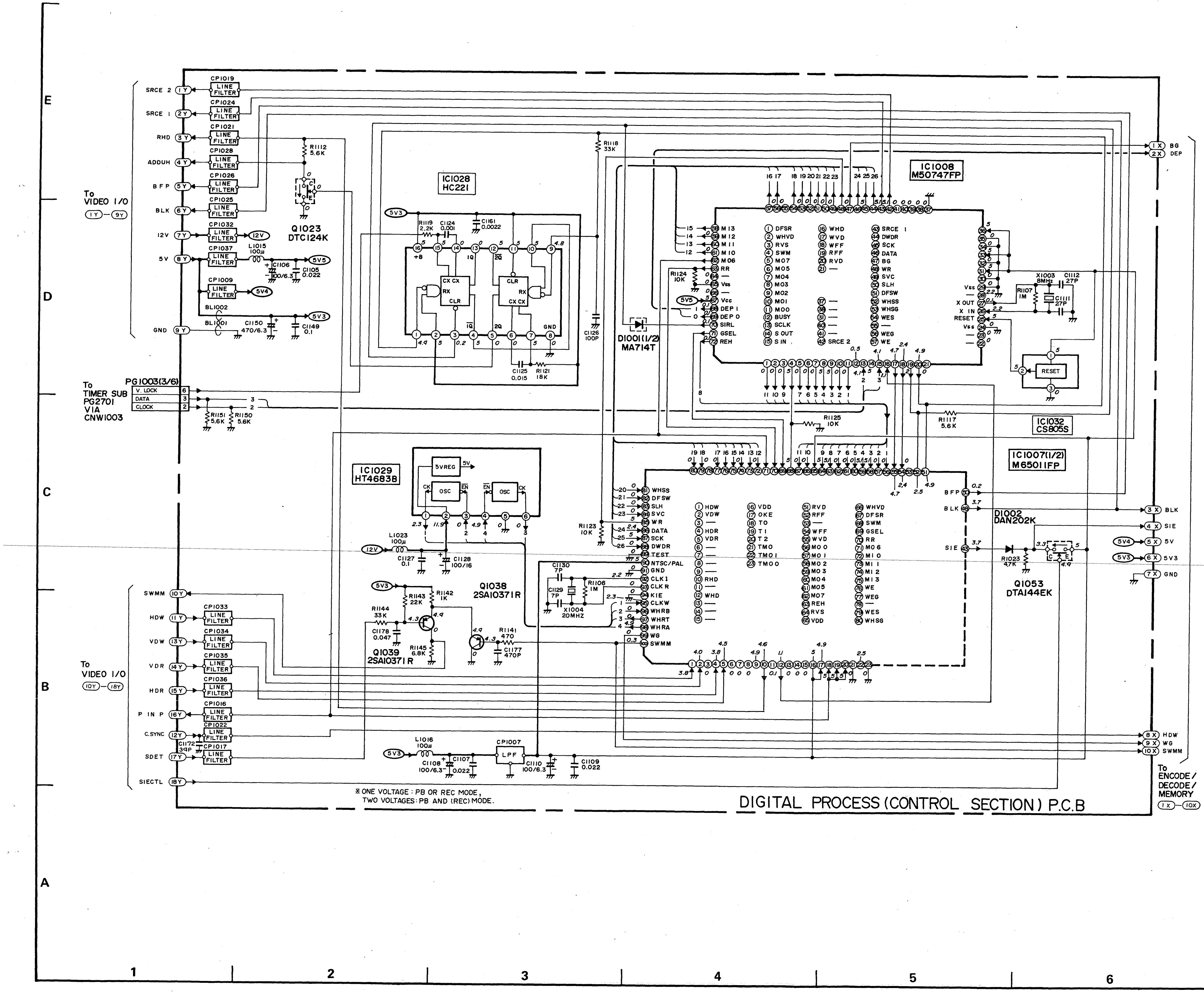

IC1009
74HC157
IC1010
74HC157
IC1013
74HC153
IC1014
74HC153
IC1015
74HC153
IC1016(YA)
M5M4C500L
IC1017(YB)
M5M4C500L
IC1018(C)
M5M4C500L
IC1019
74HC153
IC1020
74HC153
IC1021
74HC153
IC1022
74HC157
IC1023
74HC157
IC1024
74HC157
IC1025(Y)
M52679P
IC1026(R)
M52679P
IC1027(B)
M52679P
DECODER
ENABLE
BIT ENABLE
TTL TO ECL
MASTER→SLAVE LATCH
CURRENT SW
CURRENT SOURCE
CONTROL
CLOCK GENE-RATOR
LINE FILTER
CP1008
LPF
CP1029
CP1030
CP1031
Q1024
2SA1037KR
Q1026
2SA1037KR
Q1027
2SA1037KR
Q1028
2SA1037KR
Q1031
2SA1037KR
Q1032
2SA1037KR
D1007
DAN202K
L1020
100μ
R1115
1.2K
R1116
1.2K
R1120
1.2K
R1175
4.7K
R1134
8.2K
R1077
2.2K
C1113
100/6.3
C1114
0.022
C1115
1000/6.3
C1117
0.047
C1118
0.047
C1119
0.047
C1194
39P
C1195
39P
C1162
0.01
C1163
0.01
C1169
470/10
C1170
0.1
C1120
0.01
C1121
0.01
C1122
0.01
C1155
0.01
C1176
0.1
C1059
0.01
C1050
0.01
C1185
0.01
C1164
0.1
C1188
0.1
C1189
0.1
C1167
0.1
C1190
0.1
5V3
5V4
PB-Y
R-Y
B-Y
EE
1X BG
2X DEP
3X BLK
4X SIE
5X 5V4
6X 5V3
7X GND
8X C SYNC
9X WG
10X SW MM
To CONTROL
1X — 10X
1Z GND
2Z Y
4Z R-Y
3Z B-Y
To VIDEO I/O
1Z — 4Z

※ONE VOLTAGE: PB OR REC MODE.
TWO VOLTAGES: PB AND (REC) MODE.

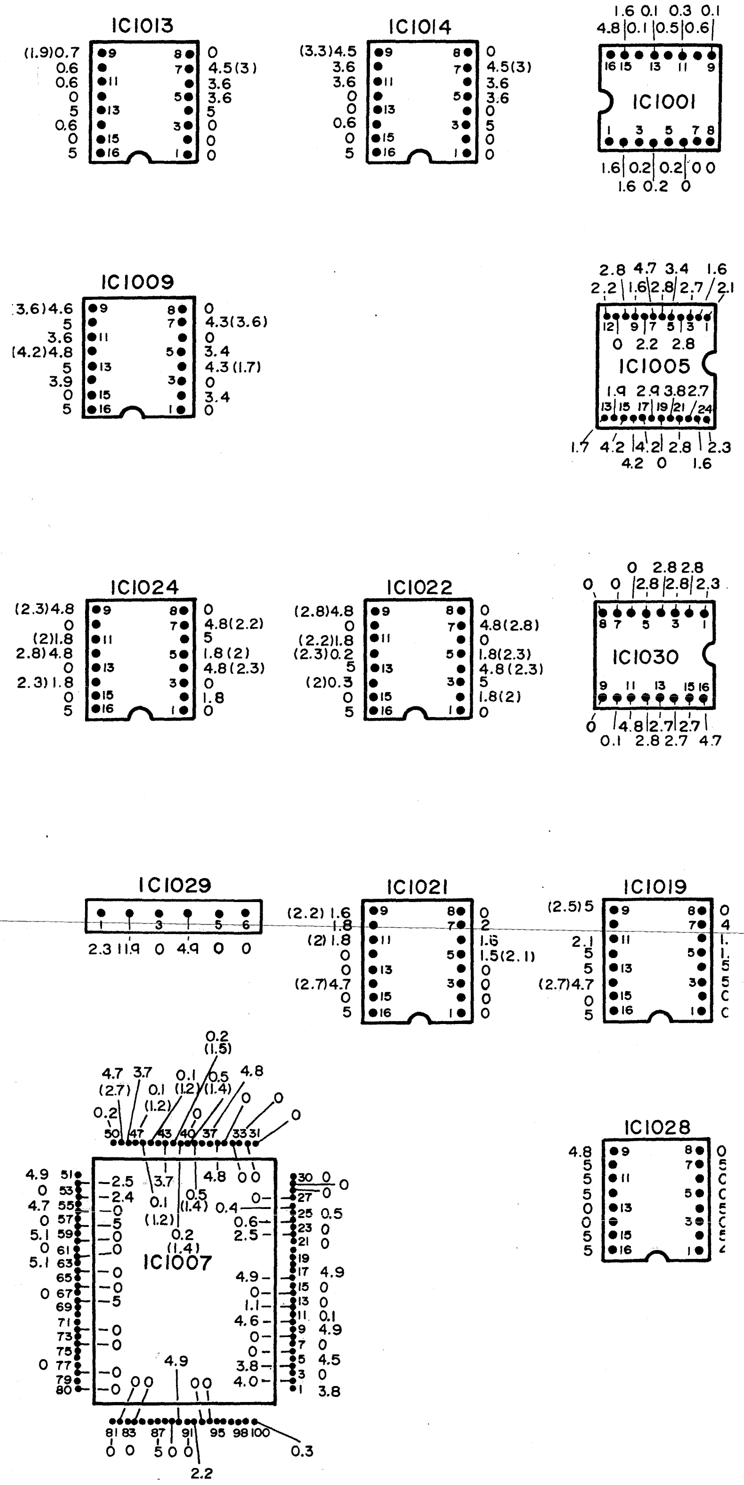
DIGITAL PROCESS (ENCODE/DECODE/MEMORY SECTION) P.C.B

SCHEMATIC DIAGRAM	PAGE
TUNER UNIT	5-6
IF UNIT	5-8
TIMER SUB	5-9
TIMER	5-12
Y/CHROMA	5-18
PRE/REC AMP	5-21
VS TUNING	5-22
DEMODULATOR	5-23
CHARACTER GENERATOR	5-25
JACK	5-27
AUDIO I/O	5-32
AUDIO NR	5-35
FM AUDIO	5-38
MOTOR DRIVE	5-39
SERVO	5-41
SYS. CON.	5-44
VIDEO I/O PROCESS	5-50
ENCODE/DECODE/MEMORY	5-53
CONTROL	5-56
REGULATOR	5-62
RF CONVERTER (AU)	5-65
RF CONVERTER (DSW)	5-66

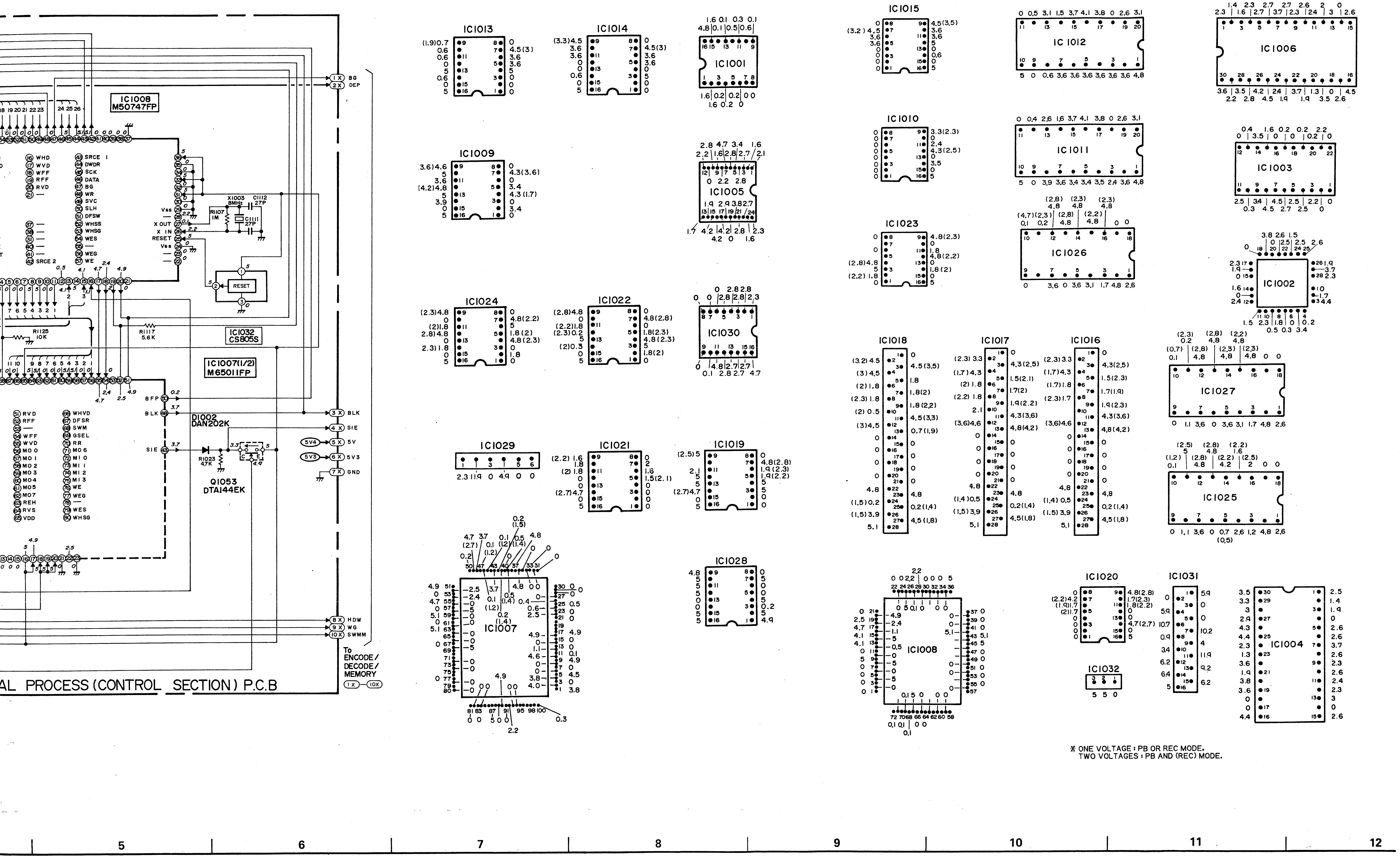
4 5 6 7 8 9 10 11


To VIDEO I/O (1Y)-(9Y)
SRCE 2
SRCE 1
RHD
ADDUH
BFP
BLK
12V
5V
GND
LINE FILTER
Q1023 DTC124K
IC1028 HC221
IC1008 M50747FP
D1001(1/2) MA714T
IC1032 CS805S
IC1007(1/2) M65011FP
To TIMER SUB PG2701 VIA CNW1003
PG1003(3/6)
V. LOCK
DATA
CLOCK
IC1029 HT4683B
5VREG
OSC
Q1038 2SA1037IR
Q1039 2SA1037IR
X1004 20MHZ
X1003 8MHz
RESET
D1002 DAN202K
Q1053 DTA144EK
To VIDEO I/O (10Y)-(18Y)
SWMM
HDW
VDW
VDR
HDR
P IN P
C.SYNC
SDET
SIECTL
LPF
BG
DEP
BLK
SIE
5V
5V3
GND
HDW
WG
SWMM
To ENCODE/ DECODE/ MEMORY (1X)-(10X)
DIGITAL PROCESS (CONTROL SECTION) P.C.B
1
2
3
4
5
6
7
8
E
D
C
B
A

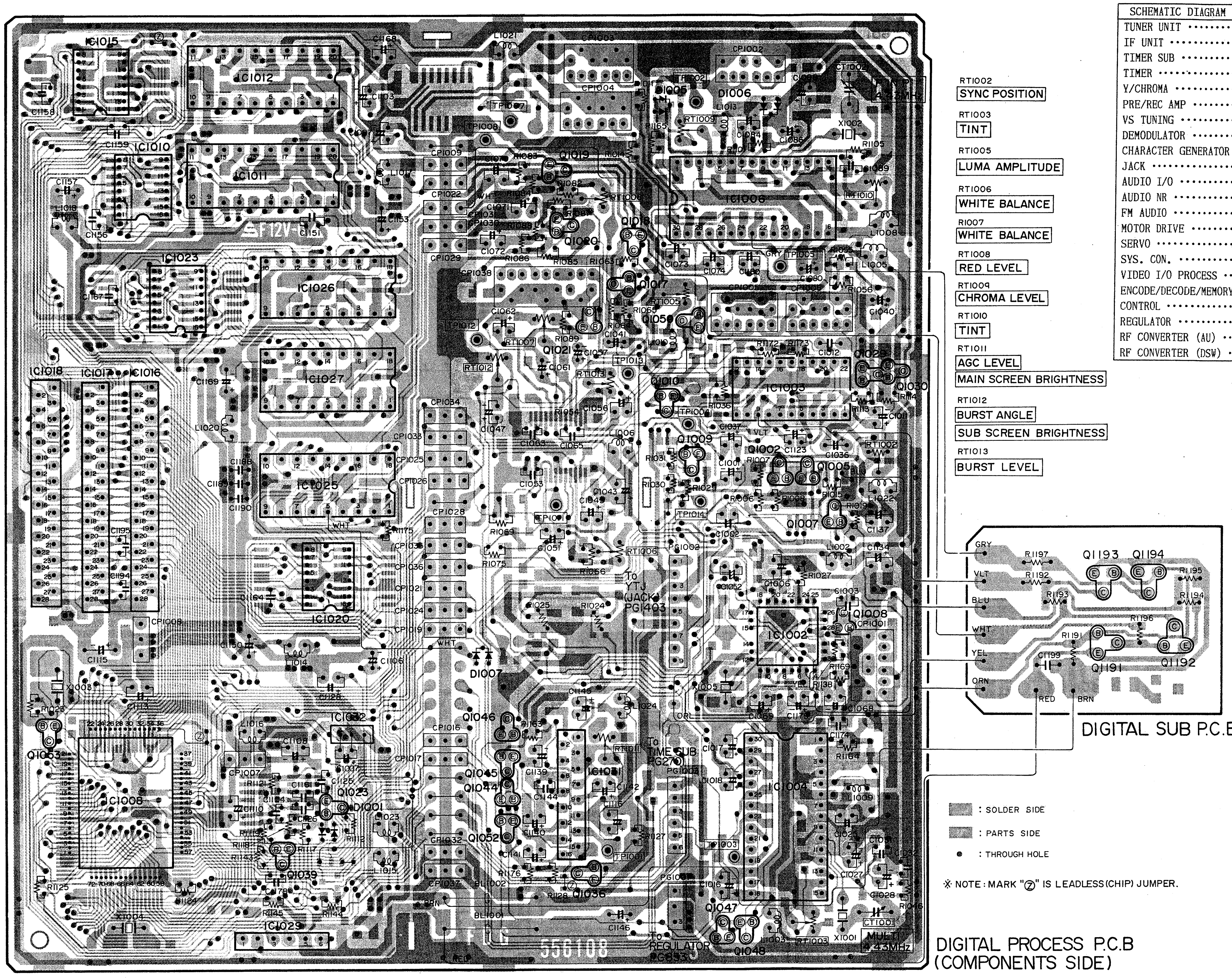
※ONE VOLTAGE : PB OR REC MODE,
TWO VOLTAGES: PB AND (REC) MODE.


IC1013
IC1014
IC1001
IC1009
IC1005
IC1024
IC1022
IC1030
IC1029
IC1021
IC1019
IC1007
IC1028

DIGITAL PROCESS CIRCUIT BOARD


IC1008
M50747FP
IC1007(1/2)
M65011FP
IC1032
CS805S
X1003 8MHz
C1112 27P
C1111 27P
R1107 1M
R1125 10K
R1117 5.6K
RESET
D1002
DAN202K
Q1053
DTA144EK
R1023 4.7K
BG
DEP
BLK
SIE
5V
5V3
GND
HDW
WG
SWMM
To ENCODE/ DECODE/ MEMORY
AL PROCESS (CONTROL SECTION) P.C.B
IC1001
IC1002
IC1003
IC1004
IC1005
IC1006
IC1007
IC1008
IC1009
IC1010
IC 1011
IC 1012
IC1013
IC1014
IC1015
IC1016
IC1017
IC1018
IC1019
IC1020
IC1021
IC1022
IC1023
IC1024
IC1025
IC1026
IC1027
IC1028
IC1029
IC1030
IC1031
IC1032
5
6
7
8
9
10
11
12

※ ONE VOLTAGE : PB OR REC MODE.
TWO VOLTAGES : PB AND (REC) MODE.


IC1015
IC1012
IC1010
IC1011
IC1023
IC1026
IC1027
IC1025
IC1018
IC1017
IC1016
IC1020
IC1008
IC1032
IC1029
IC1001
IC1004
IC1002
IC1003
IC1006
IC1005
Q1019
Q1020
Q1018
Q1017
Q1050
Q1021
Q1010
Q1009
Q1002
Q1005
Q1007
Q1008
Q1029
Q1030
Q1046
Q1045
Q1044
Q1052
Q1053
Q1039
Q1023
Q1036
Q1047
Q1048
D1005
D1006
D1007
D1001
X1002
X1003
X1004
X1005
X1001
F12V
WHT
BRN
BL1001
BL1002
To
YTJ
JACK
PG1403
To
TIME SUB
PG270
To
REGULATOR
PG853
MULTI
4.43MHz
556108
RT1002
SYNC POSITION
RT1003
TINT
RT1005
LUMA AMPLITUDE
RT1006
WHITE BALANCE
R1007
WHITE BALANCE
RT1008
RED LEVEL
RT1009
CHROMA LEVEL
RT1010
TINT
RT1011
AGC LEVEL
MAIN SCREEN BRIGHTNESS
RT1012
BURST ANGLE
SUB SCREEN BRIGHTNESS
RT1013
BURST LEVEL
GRY
VLT
BLU
WHT
YEL
ORN
RED
BRN
R1197
R1192
R1193
R1195
R1194
R1196
R1191
C1199
Q1193
Q1194
Q1191
Q1192

DIGITAL SUB P.C.B

▨ : SOLDER SIDE

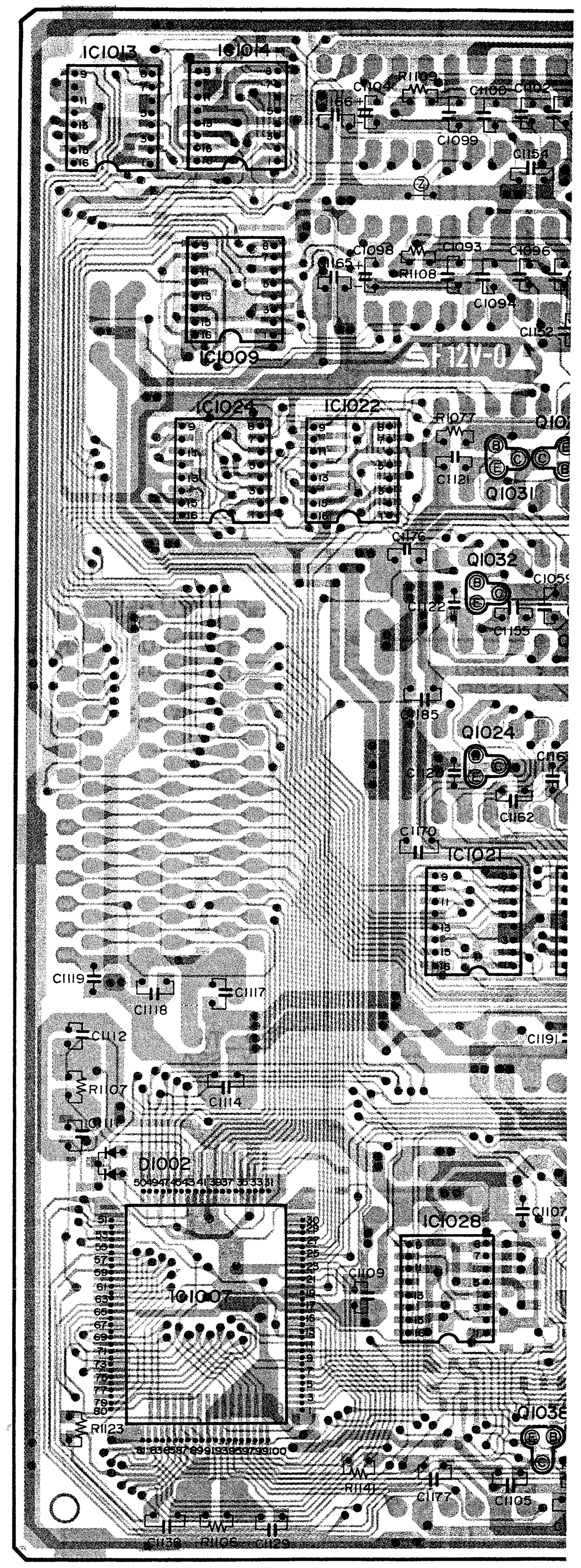
▨ : PARTS SIDE

● : THROUGH HOLE

※ NOTE : MARK "ⓩ" IS LEADLESS(CHIP) JUMPER.

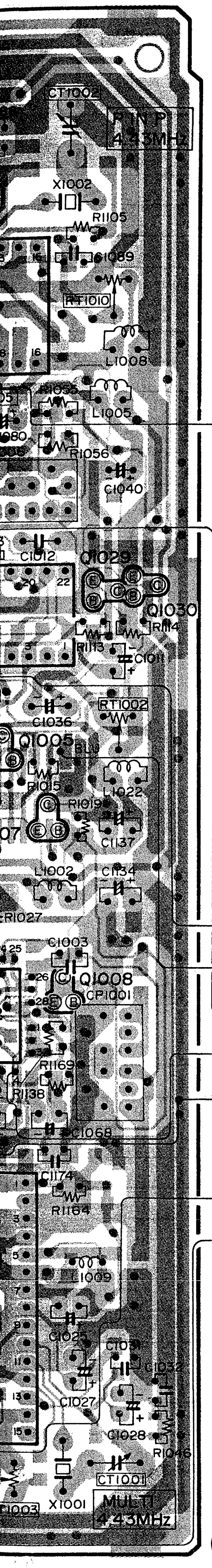
DIGITAL PROCESS P.C.B
(COMPONENTS SIDE)

SCHEMATIC DIAGRAM	PAGE
TUNER UNIT	5-6
IF UNIT	5-8
TIMER SUB	5-9
TIMER	5-12
Y/CHROMA	5-18
PRE/REC AMP	5-21
VS TUNING	5-22
DEMODULATOR	5-23
CHARACTER GENERATOR	5-25
JACK	5-27
AUDIO I/O	5-32
AUDIO NR	5-35
FM AUDIO	5-38
MOTOR DRIVE	5-39
SERVO	5-41
SYS. CON.	5-44
VIDEO I/O PROCESS	5-50
ENCODE/DECODE/MEMORY	5-53
CONTROL	5-56
REGULATOR	5-62
RF CONVERTER (AU)	5-65
RF CONVERTER (DSW)	5-66


IC1013
IC1014
IC1009
IC1024
IC1022
IC1021
IC1028
IC1007
Q1031
Q1032
Q1024
D1002
F12V

E
D
C
B
A
1
2
3
4
5
6
7
8

SCHEMATIC DIAGRAM	PAGE
TUNER UNIT	5-6
IF UNIT	5-8
TIMER SUB	5-9
TIMER	5-12
Y/CHROMA	5-18
PRE/REC AMP	5-21
VS TUNING	5-22
DEMODULATOR	5-23
CHARACTER GENERATOR	5-25
JACK	5-27
AUDIO I/O	5-32
AUDIO NR	5-35
FM AUDIO	5-38
MOTOR DRIVE	5-39
SERVO	5-41
SYS. CON.	5-44
VIDEO I/O PROCESS	5-50
ENCODE/DECODE/MEMORY	5-53
CONTROL	5-56
REGULATOR	5-62
RF CONVERTER (AU)	5-65
RF CONVERTER (DSW)	5-66


CT1002
X1002
R1105
C1089
RT1010
L1008
L1005
R1056
C1040
C1012
Q1029
Q1030
R1114
R1113
C1011
C1036
RT1002
Q1005
R1015
C1137
L1002
C1134
R1027
C1003
Q1008
CP1001
R1169
R1138
C1068
C1174
R1164
L1009
C1027
C1028
R1046
CT1001
X1001
MULTI 4.43MHz

RT1002
SYNC POSITION

RT1003
TINT

RT1005
LUMA AMPLITUDE

RT1006
WHITE BALANCE

R1007
WHITE BALANCE

RT1008
RED LEVEL

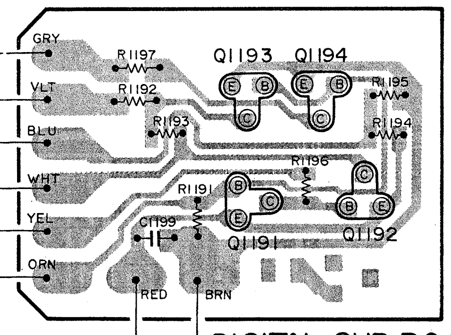
RT1009
CHROMA LEVEL

RT1010
TINT

RT1011
AGC LEVEL
MAIN SCREEN BRIGHTNESS

RT1012
BURST ANGLE
SUB SCREEN BRIGHTNESS

RT1013
BURST LEVEL


GRY
VLT
BLU
WHT
YEL
ORN
RED
BRN
R1197
R1192
R1193
Q1193
Q1194
R1195
R1194
R1196
R1191
Q1191
Q1192
C1199

DIGITAL SUB P.C.B

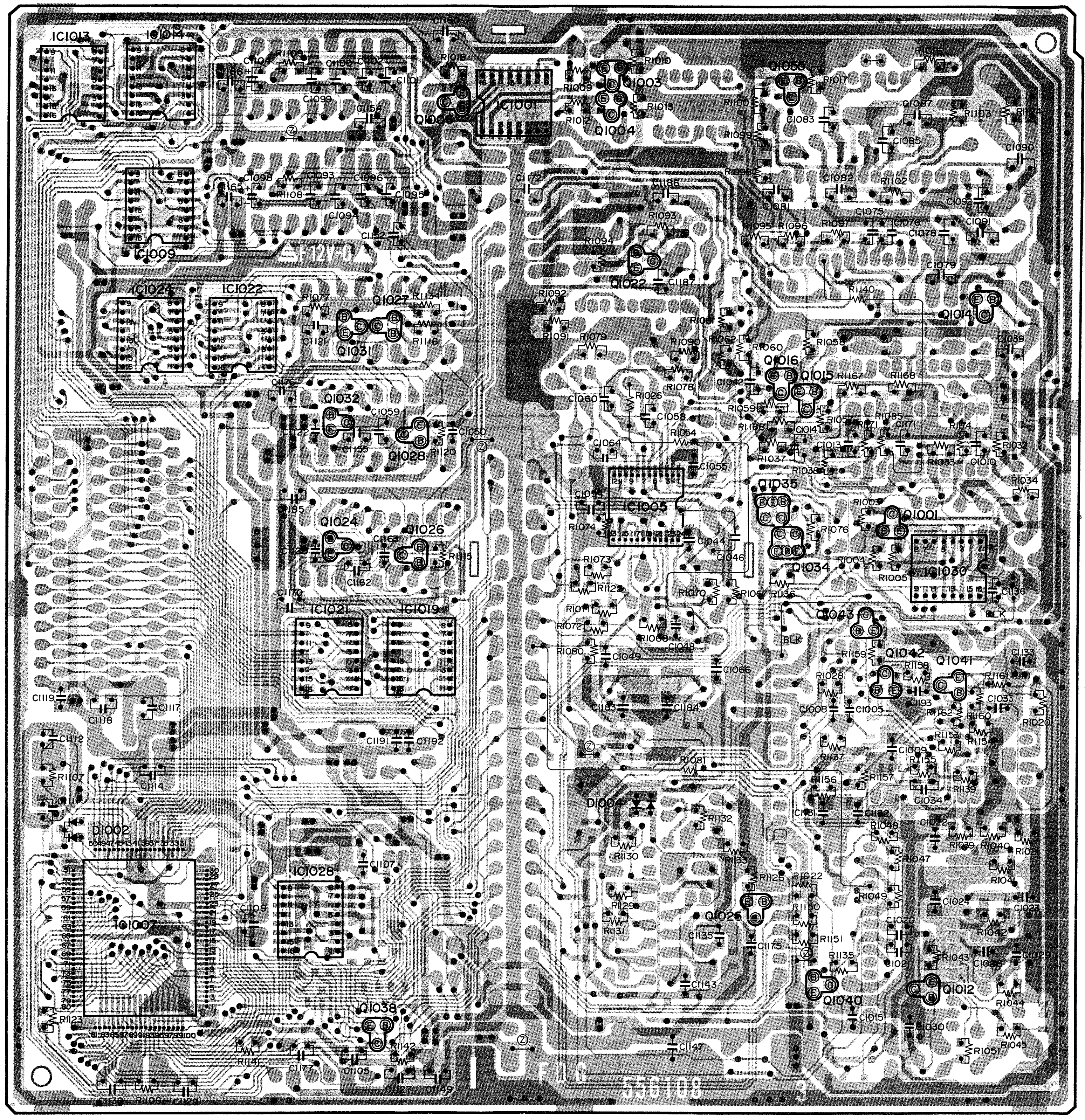
▨ : SOLDER SIDE

▨ : PARTS SIDE

● : THROUGH HOLE

※ NOTE : MARK "Ⓩ" IS LEADLESS(CHIP) JUMPER.

DIGITAL PROCESS P.C.B
(COMPONENTS SIDE)


IC1013
IC1014
IC1001
Q1003
Q1004
Q1036
IC1009
F12V-0
IC1024
IC1022
Q1027
Q1031
Q1022
Q1014
Q1016
Q1015
Q1032
Q1028
IC1005
Q1035
Q1001
IC1030
Q1024
Q1026
Q1034
IC1021
IC1019
Q1043
Q1042
Q1041
D1004
D1002
IC1007
IC1028
Q1025
Q1040
Q1012
Q1038
556108
FDG

▨ : SOLDER SIDE

▨ : PARTS SIDE

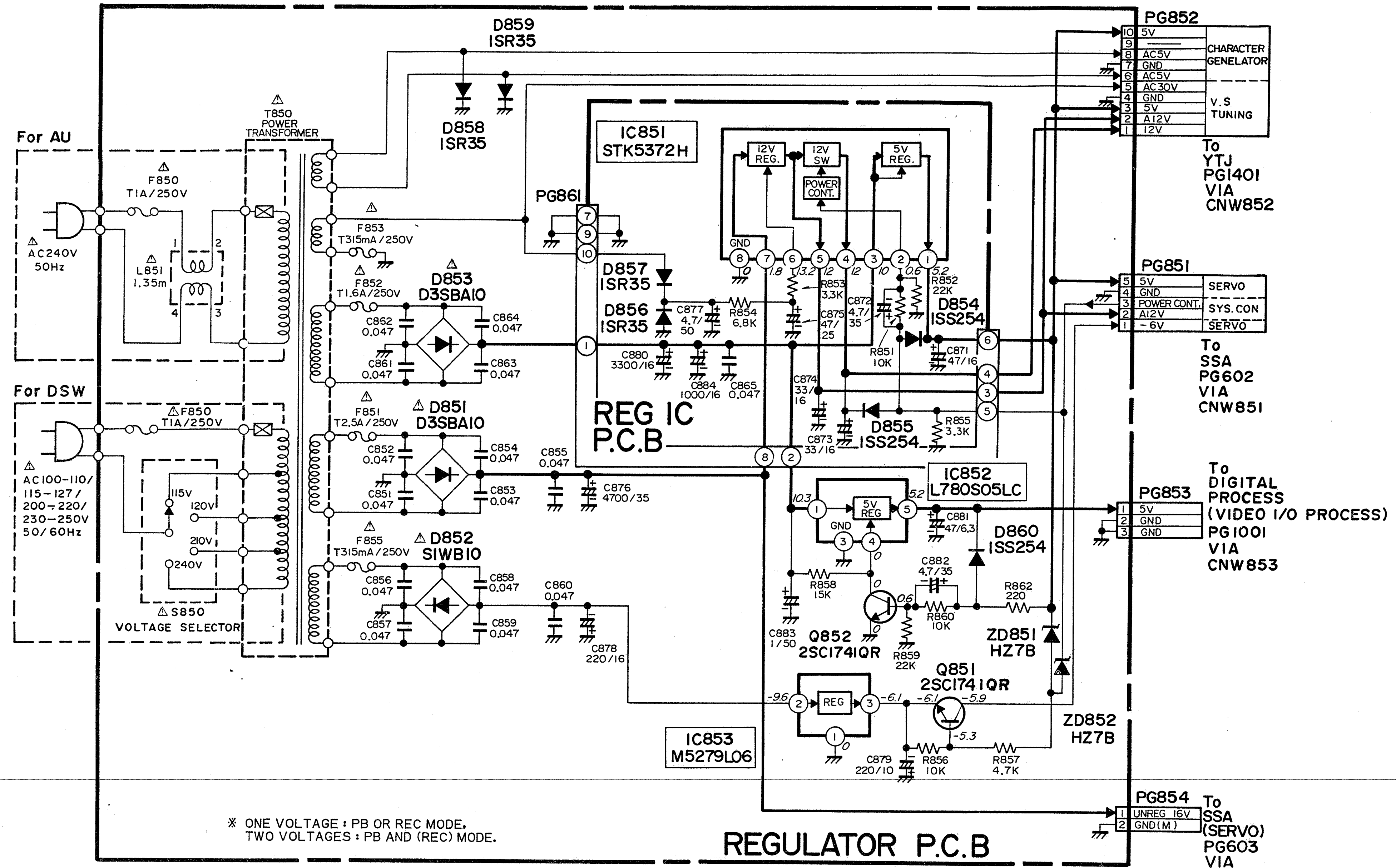
● : THROUGH HOLE

※ NOTE MARK "Ⓩ" IS LEADLESS(CHIP) JUMPER.

DIGITAL PROCESS P.C.B
(SOLDER SIDE)

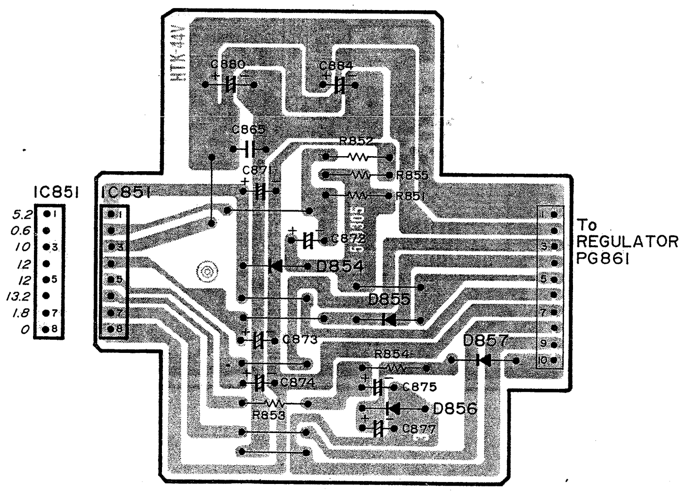
5 6 7 8 9 10 11

REGULATOR


D859
ISR35
D858
ISR35
PG852
10 5V
9
8 AC5V
7 GND
6 AC5V
5 AC30V
4 GND
3 5V
2 A12V
1 12V
CHARACTER GENELATOR
V.S TUNING
To YTJ PG1401 VIA CNW852
IC851
STK5372H
PG861
12V REG.
12V SW
POWER CONT.
5V REG.
GND
For AU
T850 POWER TRANSFORMER
F850 T1A/250V
AC240V 50Hz
L851 1.35m
F853 T315mA/250V
F852 T1.6A/250V
D853 D3SBA10
C862 0.047
C861 0.047
C864 0.047
C863 0.047
D857 ISR35
D856 ISR35
C877 4.7/50
R854 6.8K
C880 3300/16
C884 1000/16
C865 0.047
R853 3.3K
C875 47/25
C872 4.7/35
R852 22K
D854 ISS254
R851 10K
C871 47/16
PG851
5 5V
4 GND
3 POWER CONT.
2 A12V
1 -6V
SERVO
SYS.CON
To SSA PG602 VIA CNW851
For DSW
F850 T1A/250V
AC100-110/ 115-127/ 200-220/ 230-250V 50/60Hz
115V
120V
210V
240V
S850 VOLTAGE SELECTOR
F851 T2.5A/250V
D851 D3SBA10
C852 0.047
C851 0.047
C854 0.047
C853 0.047
C855 0.047
C876 4700/35
C874 33/16
C873 33/16
D855 ISS254
R855 3.3K
REG IC P.C.B
IC852 L780S05LC
5V REG
C881 47/6.3
PG853
1 5V
2 GND
3 GND
To DIGITAL PROCESS (VIDEO I/O PROCESS) PG1001 VIA CNW853
D860 ISS254
F855 T315mA/250V
D852 S1WB10
C856 0.047
C857 0.047
C858 0.047
C859 0.047
C860 0.047
C878 220/16
R858 15K
C882 4.7/35
R862 220
R860 10K
C883 1/50
Q852 2SC1741QR
R859 22K
ZD851 HZ7B
Q851 2SC1741QR
ZD852 HZ7B
IC853 M5279L06
REG
C879 220/10
R856 10K
R857 4.7K
PG854
1 UNREG 16V
2 GND(M)
To SSA (SERVO) PG603 VIA CNW603
REGULATOR P.C.B

※ ONE VOLTAGE : PB OR REC MODE.
TWO VOLTAGES : PB AND (REC) MODE.

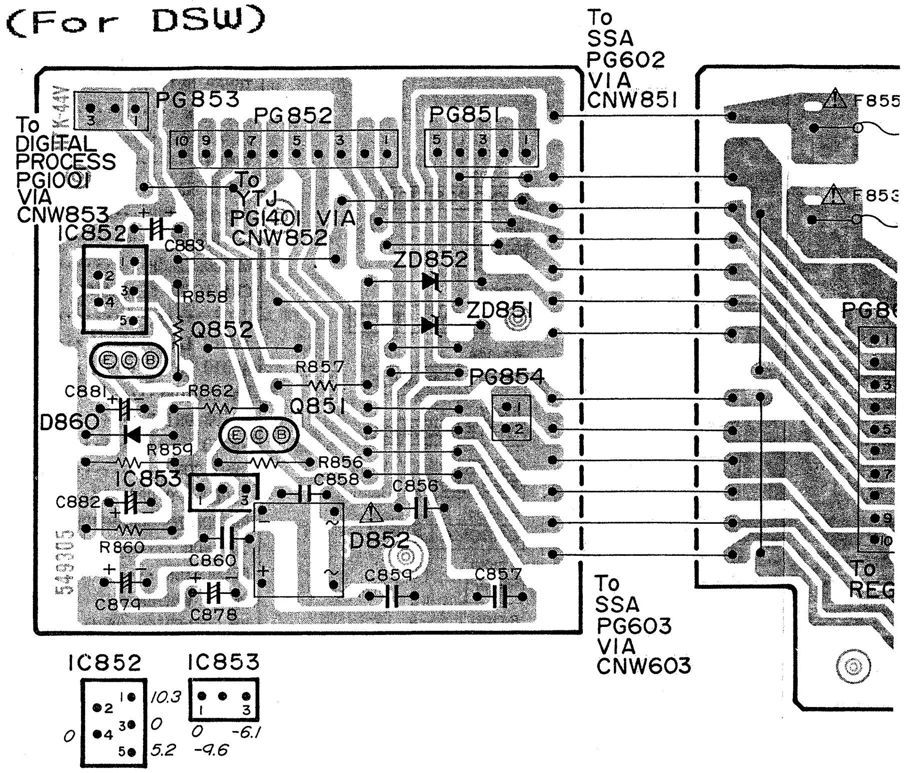
SCHEMATIC DIAGRAM	PAGE
TUNER UNIT	5-6
IF UNIT	5-8
TIMER SUB	5-9
TIMER	5-12
Y/CHROMA	5-18
PRE/REC AMP	5-21
VS TUNING	5-22
DEMODULATOR	5-23
CHARACTER GENERATOR	5-25
JACK	5-27
AUDIO I/O	5-32
AUDIO NR	5-35
FM AUDIO	5-38
MOTOR DRIVE	5-39
SERVO	5-41
SYS. CON.	5-44
VIDEO I/O PROCESS	5-50
ENCODE/DECODE/MEMORY	5-53
CONTROL	5-56
REGULATOR	5-62
RF CONVERTER (AU)	5-65
RF CONVERTER (DSW)	5-66


IC851
HTK-44Y
C880
C884
C865
R852
C871
R855
R851
C872
D854
D855
C873
D857
R854
C874
C875
D856
R853
C877
To REGULATOR PG861

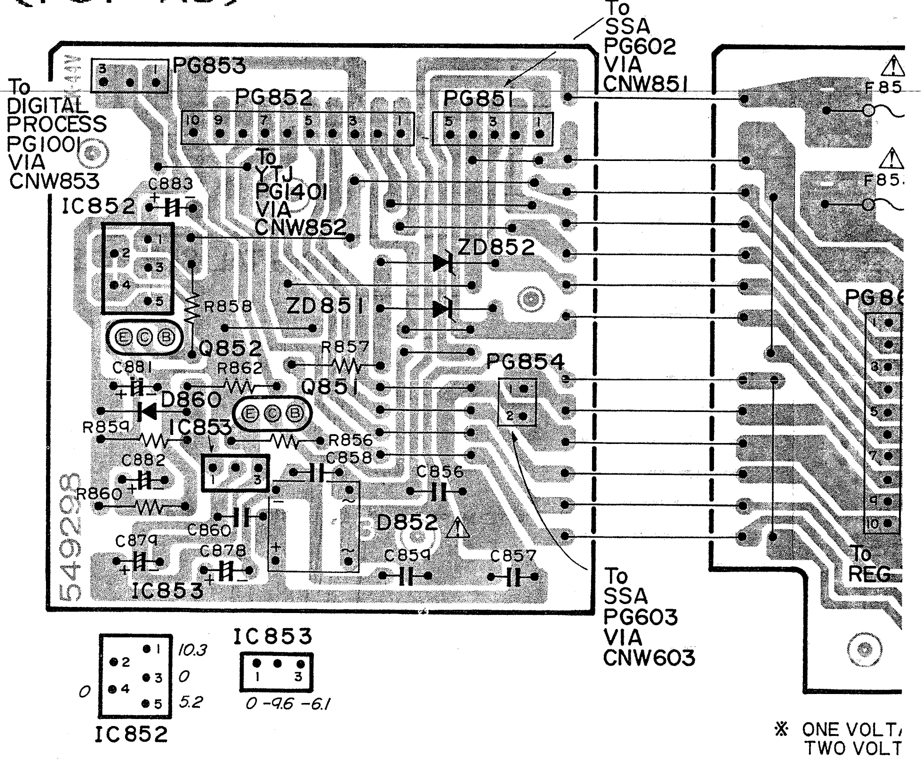
※ ONE VOLTAGE : PB OR REC MODE.
TWO VOLTAGES : PB AND (REC) MODE.

REG IC P.C.B

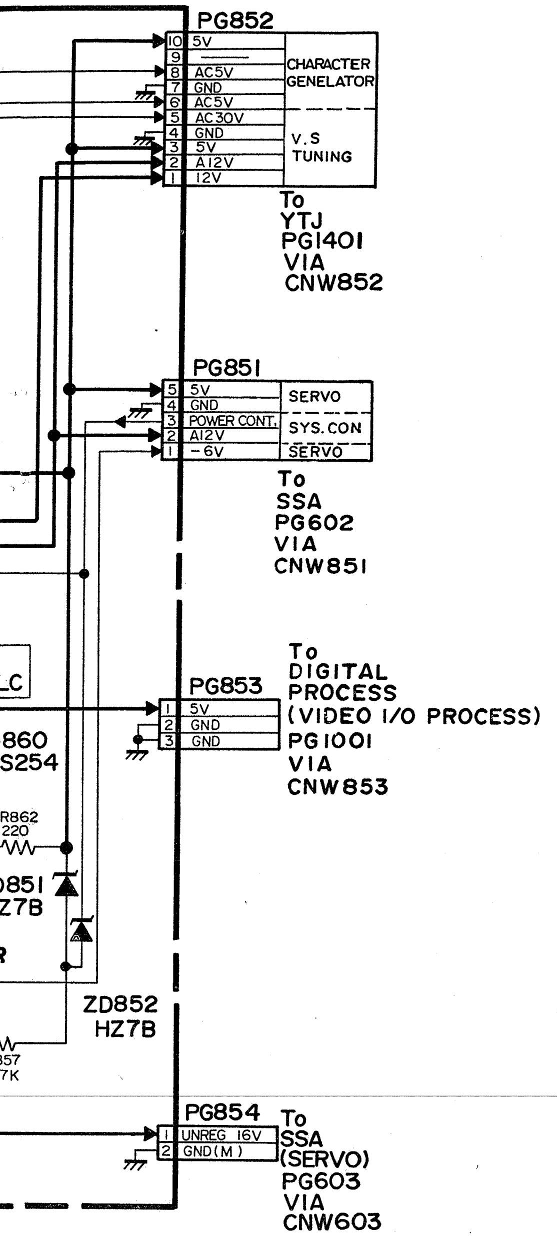
(For DSW)


To SSA PG602 VIA CNW851
PG853
PG852
PG851
To DIGITAL PROCESS PG1001 VIA CNW853
To YTJ PG1401 VIA CNW852
IC852
C883
ZD852
R858
ZD851
Q852
R857
PG854
C881
R862
Q851
D860
R859
R856
IC853
C858
C856
C882
D852
R860
C860
C859
C857
C879
C878
549305
F855
F853
To SSA PG603 VIA CNW603
To REG
IC852
IC853
10.3
0
5.2
-6.1
-9.6

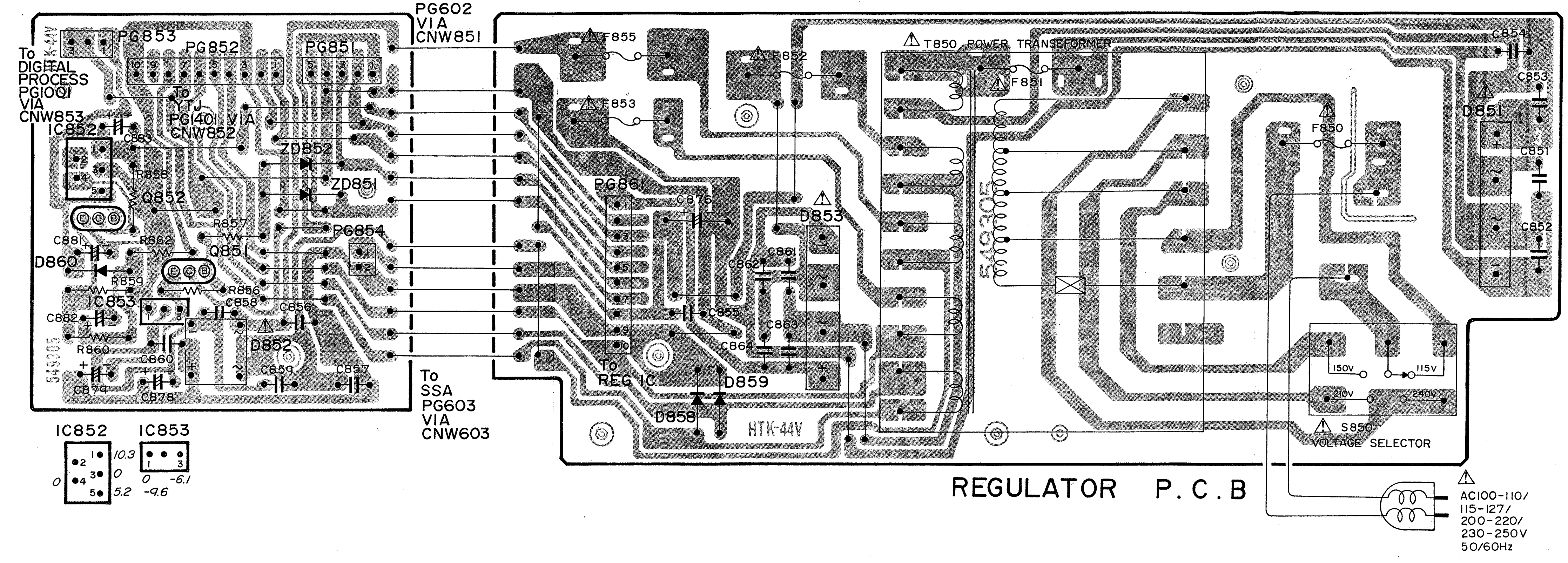
(For AU)


To SSA PG602 VIA CNW851
PG853
PG852
PG851
To DIGITAL PROCESS PG1001 VIA CNW853
To YTJ PG1401 VIA CNW852
IC852
C883
ZD852
R858
ZD851
Q852
R857
PG854
C881
R862
D860
Q851
R859
IC853
R856
C858
C882
C856
R860
D852
C860
C879
C878
C859
C857
549298
IC853
F85
To SSA PG603 VIA CNW603
To REG
IC852
10.3
0
5.2
0 -9.6 -6.1

※ ONE VOLT
TWO VOLT

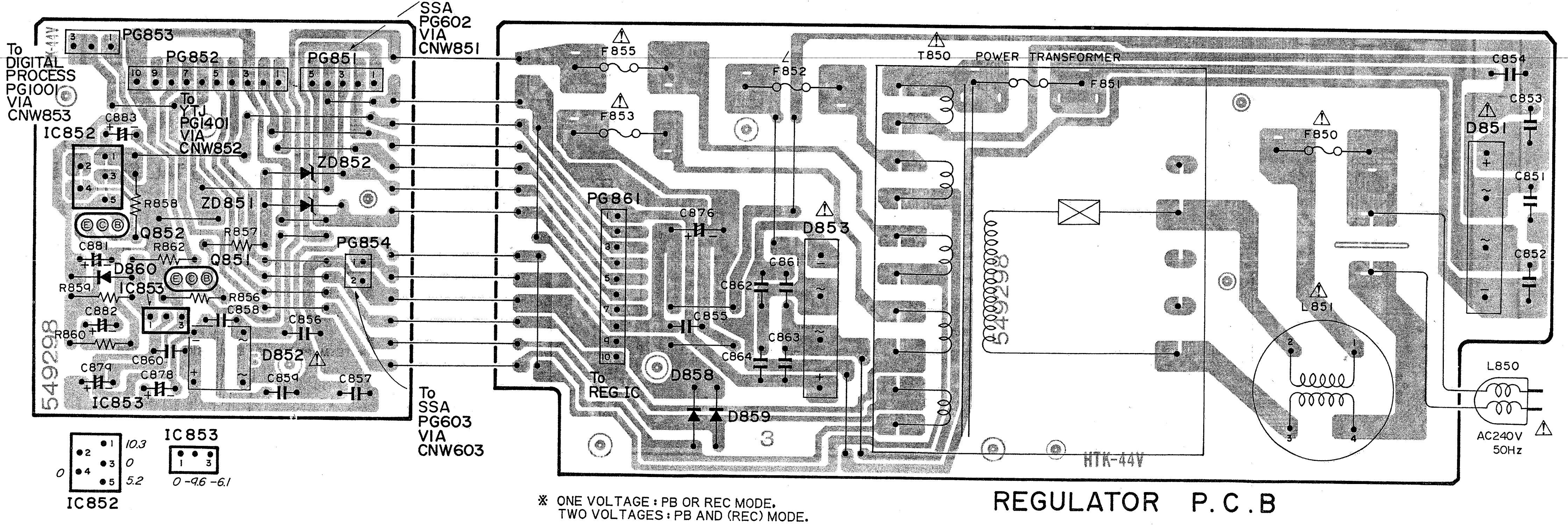

PG852
10 5V
9
8 AC5V
7 GND
6 AC5V
5 AC30V
4 GND
3 5V
2 A12V
1 12V
CHARACTER GENERATOR
V.S TUNING
To YTJ PG1401 VIA CNW852
PG851
5 5V
4 GND
3 POWER CONT.
2 A12V
1 -6V
SERVO
SYS.CON
SERVO
To SSA PG602 VIA CNW851
PG853
1 5V
2 GND
3 GND
To DIGITAL PROCESS (VIDEO I/O PROCESS) PG1001 VIA CNW853
860
S254
R862
220
D851
Z7B
ZD852
HZ7B
PG854
1 UNREG 16V
2 GND(M)
To SSA (SERVO) PG603 VIA CNW603

(For DSW)


PG853
PG852
PG851
To SSA PG602 VIA CNW851
To DIGITAL PROCESS PG1001 VIA CNW853
To YTJ PG1401 VIA CNW852
IC852
C883
R858
Q852
ZD852
ZD851
R857
PG854
C881
R862
D860
Q851
R859
R856
IC853
C858
C856
C882
R860
D852
C860
C859
C857
C879
C878
549305
To SSA PG603 VIA CNW603
F855
F853
F852
F851
T850 POWER TRANSFORMER
PG861
C876
D853
C862
C861
C855
C863
C864
To REG IC
D859
D858
HTK-44V
C854
C853
D851
F850
C851
C852
150V
115V
210V
240V
S850 VOLTAGE SELECTOR
AC100-110/ 115-127/ 200-220/ 230-250V 50/60Hz
IC852
IC853
10.3
0
5.2
0
-6.1
-9.6

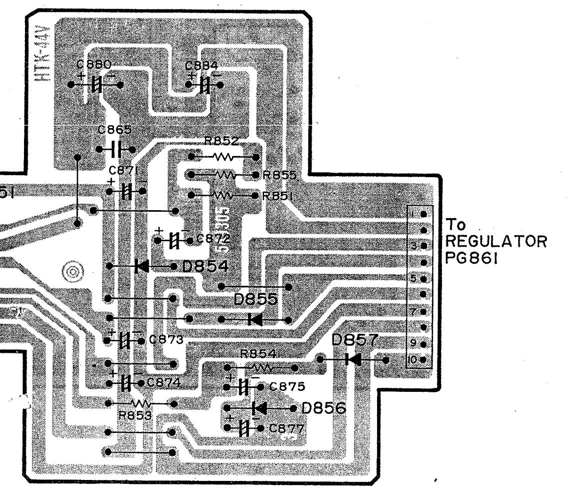
REGULATOR P.C.B

(For AU)


PG853
PG852
PG851
To SSA PG602 VIA CNW851
To DIGITAL PROCESS PG1001 VIA CNW853
To YTJ PG1401 VIA CNW852
IC852
C883
R858
ZD852
ZD851
Q852
R862
R857
PG854
C881
D860
Q851
R859
IC853
R856
C882
C858
C856
R860
D852
C860
C879
C878
C859
C857
549298
IC853
To SSA PG603 VIA CNW603
F855
F852
F853
F851
T850 POWER TRANSFORMER
PG861
C876
D853
C861
C862
C855
C863
C864
D858
D859
To REG IC
3
HTK-44V
C854
C853
D851
F850
C851
C852
L851
L850
AC240V 50Hz
IC852
IC853
10.3
0
5.2
0 -9.6 -6.1

※ ONE VOLTAGE : PB OR REC MODE.
TWO VOLTAGES : PB AND (REC) MODE.

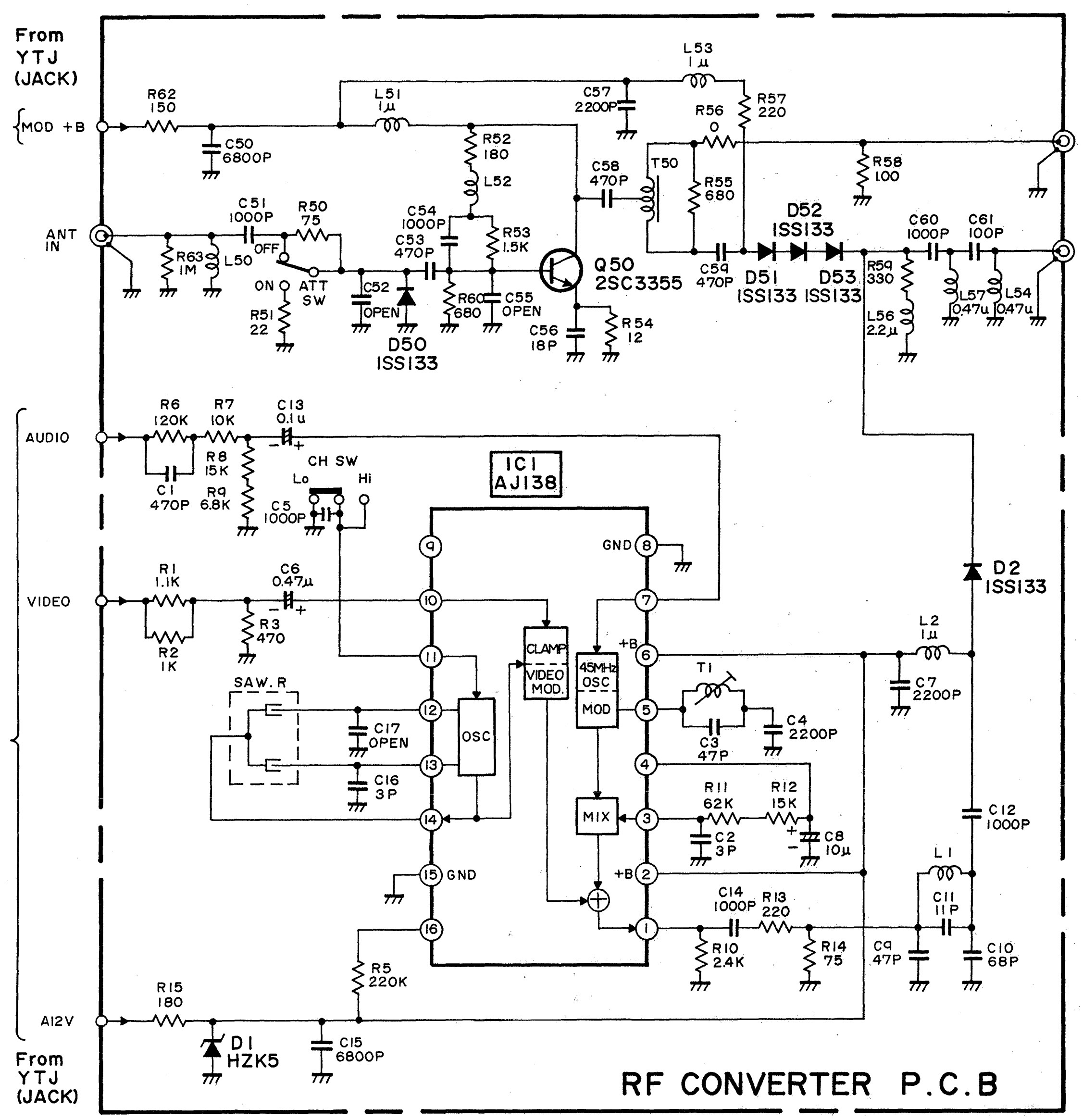
REGULATOR P.C.B


HTK-44V
C860
C864
C865
R852
C871
R855
R851
C872
D854
D855
C873
D857
R854
C874
R853
C875
D856
C877
To REGULATOR PG861

OR REC MODE.
PB AND (REC) MODE.

REG IC P.C.B

RF CONVERTER (For AU)


From YTJ (JACK)
MOD +B
R62 150
C50 6800P
L51 1μ
L53 1μ
C57 2200P
R56 0
R57 220
VTR TU
ANT IN
ANT OUT
C51 1000P
R50 75
R63 1M
L50
OFF
ON
ATT SW
R51 22
C52 OPEN
D50 ISS133
R52 180
L52
C54 1000P
C53 470P
R53 1.5K
R60 680
C55 OPEN
Q50 2SC3355
C56 18P
R54 12
C58 470P
T50
R55 680
C59 470P
D51 ISS133
D52 ISS133
D53 ISS133
R58 100
C60 1000P
C61 100P
R59 330
L56 2.2μ
L57 .047μ
L54 .047μ
AUDIO
R6 120K
R7 10K
C13 0.1u
C1 470P
R8 15K
R9 6.8K
CH SW
Lo
Hi
C5 1000P
IC1 AJ138
GND
VIDEO
R1 1.1K
R2 1K
C6 0.47μ
R3 470
D2 ISS133
L2 1μ
C7 2200P
SAW.R
C17 OPEN
C16 3P
OSC
CLAMP
VIDEO MOD.
45MHz OSC
MOD
MIX
T1
C3 47P
C4 2200P
R11 62K
R12 15K
C2 3P
C8 10μ
+B
C12 1000P
L1
C11 11P
C14 1000P
R13 220
R10 2.4K
R14 75
C9 47P
C10 68P
R5 220K
A12V
R15 180
D1 HZK5
C15 6800P
From YTJ (JACK)
RF CONVERTER P.C.B

SCHEMATIC DIAGRAM	PAGE
TUNER UNIT	5-6
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CONTROL	5-56
REGULATOR	5-62
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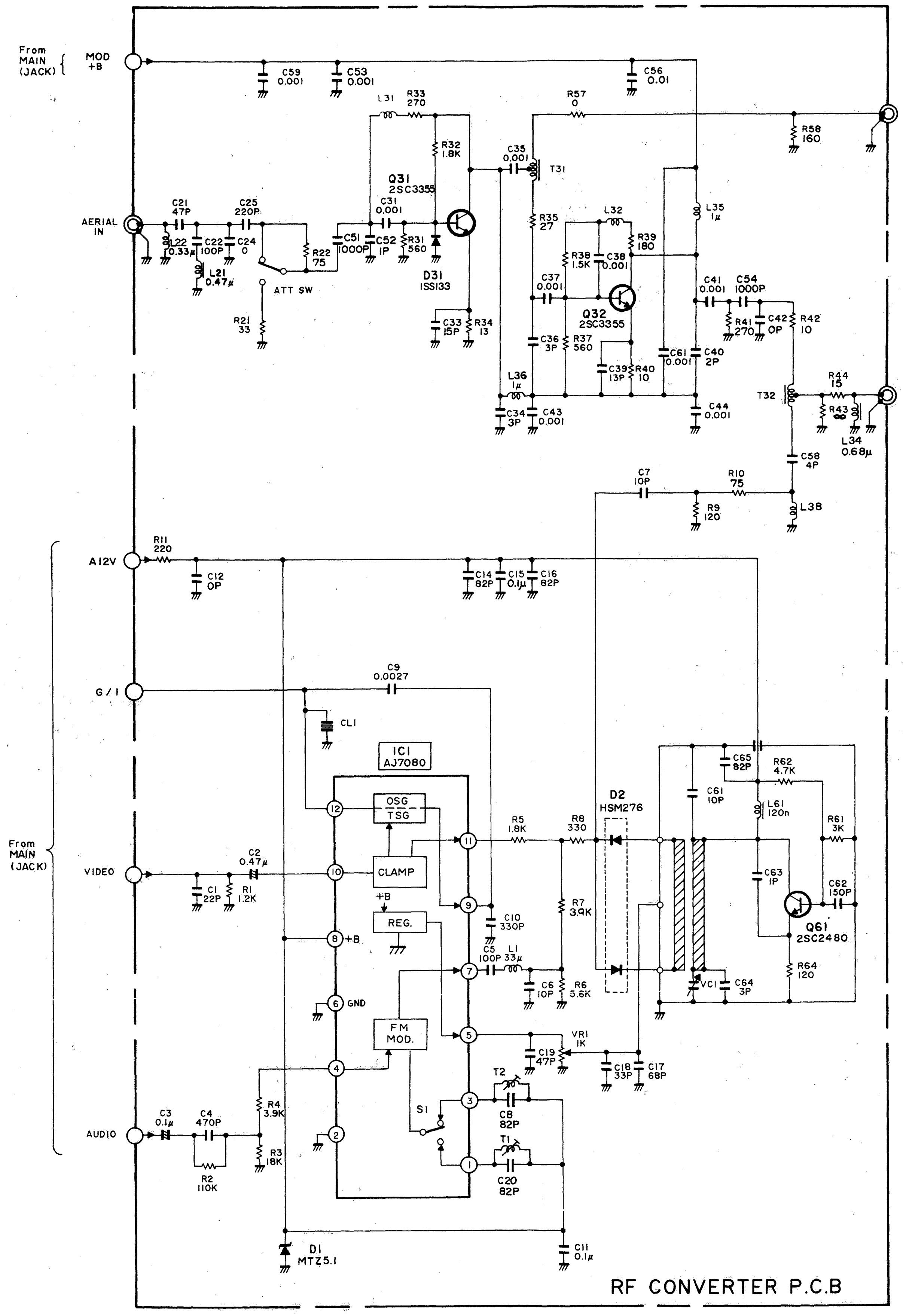
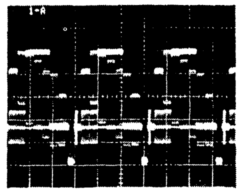
RF CONVERTER (For DSW)


From MAIN (JACK)
MOD +B
C59 0.001
C53 0.001
C56 0.01
L31
R33 270
R57 0
R58 160
VTR TU
R32 1.8K
C35 0.001
T31
Q31 2SC3355
AERIAL IN
C21 47P
C25 220P
C31 0.001
C51 1000P
C52 1P
R31 560
D31 ISS133
L22 0.33μ
C22 100P
C24 0
L21 0.47μ
R22 75
ATT SW
R21 33
C33 15P
R34 13
R35 27
L32
R38 1.5K
C38 0.001
R39 180
L35 1μ
C37 0.001
Q32 2SC3355
C36 3P
R37 560
C39 13P
R40 10
C61 0.001
C40 2P
C41 0.001
C54 1000P
R41 270
C42 0P
R42 10
L36 1μ
C34 3P
C43 0.001
C44 0.001
T32
R44 15
R43
ANT OUT
L34 0.68μ
C58 4P
C7 10P
R10 75
R9 120
L38
A12V
R11 220
C12 0P
C14 82P
C15 0.1μ
C16 82P
G/I
C9 0.0027
CL1
IC1 AJ7080
OSC TSG
CLAMP
REG.
FM MOD.
+B
GND
C65 82P
R62 4.7K
C61 10P
L61 120n
R61 3K
D2 HSM276
R5 1.8K
R8 330
C63 1P
C62 150P
Q61 2SC2480
R64 120
VIDEO
C1 22P
R1 1.2K
C2 0.47μ
C10 330P
R7 3.9K
C5 100P
L1 33μ
C6 10P
R6 5.6K
VC1
C64 3P
VR1 1K
C19 47P
C18 33P
C17 68P
T2
C8 82P
S1
T1
C20 82P
AUDIO
C3 0.1μ
C4 470P
R2 110K
R4 3.9K
R3 18K
D1 MTZ5.1
C11 0.1μ
RF CONVERTER P.C.B

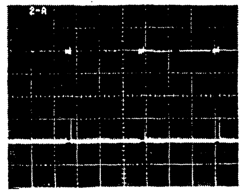
WAVEFORMS

Y/CHROMA

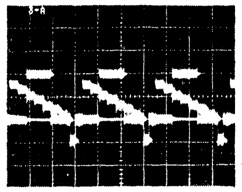
1 IC201-1
0.2V/20.0µ sec.cm
REC



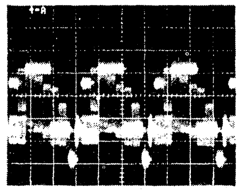
2 IC201-3
1V/20.0µ sec.cm
REC/PLAY



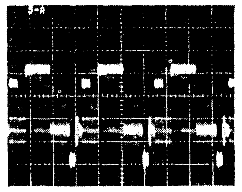
3 IC201-7
0.1V/20.0µ sec.cm
REC/PLAY



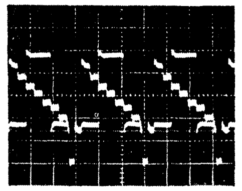
4 IC201-8
50mV/20.0µ sec.cm
REC/PLAY



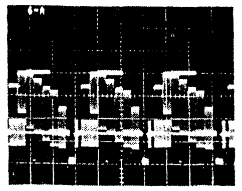
5 IC201-9
50mV/20.0µ sec.cm
REC



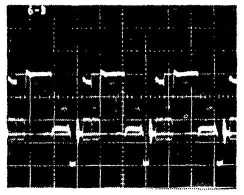
6 IC201-9
0.2V/20.0µ sec.cm
PLAY



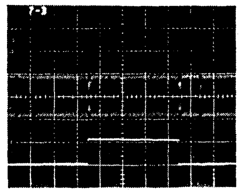
7 IC201-11
0.5V/20.0µ sec.cm
REC



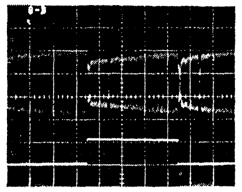
8 IC201-11
0.5V/20.0µ sec.cm
PLAY



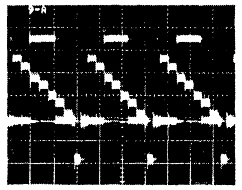
9 IC201-19
0.2V/5.0msec.cm
PLAY



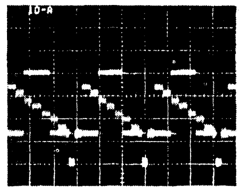
10 IC201-20
0.2V/5.0msec.cm
PLAY



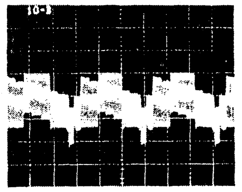
11 IC201-24
0.1V/20.0µ sec.cm
REC/PLAY



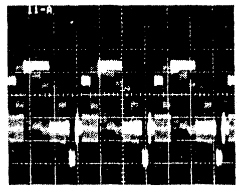
12 IC201-26
50mV/20.0µ sec.cm
REC



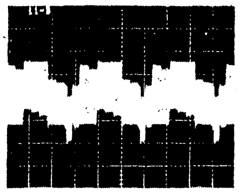
13 IC201-26
0.1V/20.0µ sec.cm
PLAY



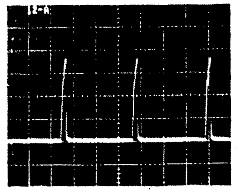
14 IC201-27
50mV/20.0µ sec.cm
REC



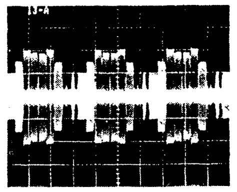
15 IC201-27
0.1V/20.0µ sec.cm
PLAY



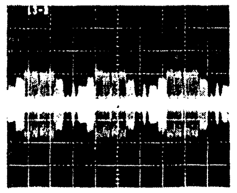
16 IC301-1
1V/20.0µ sec.cm
REC/PLAY



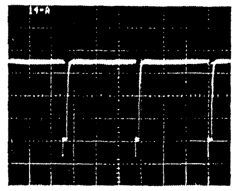
17 IC301-8
0.1V/20.0µ sec.cm
REC



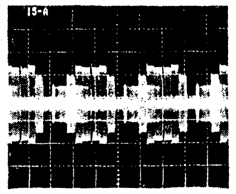
18 IC301-8
0.1V/20.0µ sec.cm
PLAY



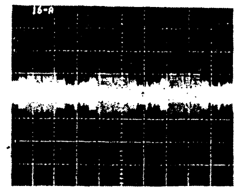
19 IC301-9
1V/20.0µ sec.cm
REC/PLAY



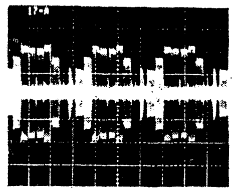
20 IC301-11
0.2V/20.0µ sec.cm
REC/PLAY



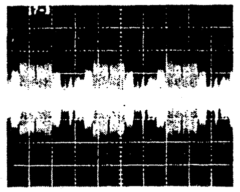
21 IC301-12
50mV/20.0µ sec.cm
PLAY



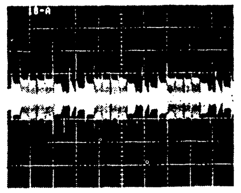
22 IC301-14
0.1V/20.0µ sec.cm
REC



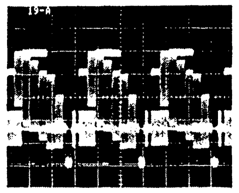
23 IC301-14
50mV/20.0µ sec.cm
PLAY



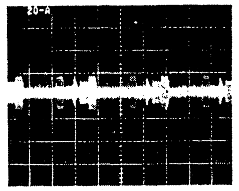
24 IC301-16
0.1V/20.0µ sec.cm
REC/PLAY



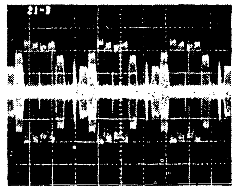
25 IC301-18
0.2V/20.0µ sec.cm
REC



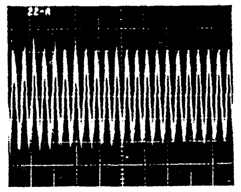
26 IC301-20
50mV/20.0µ sec.cm
REC/PLAY



27 IC301-22
0.1V/20.0µ sec.cm
PLAY

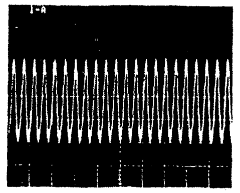


28 IC301-27
0.1V/500nsec.cm
REC/PLAY

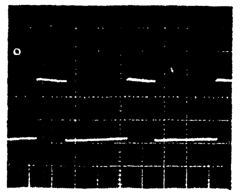


SERVO

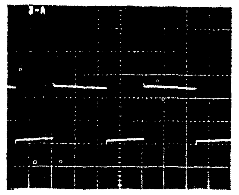
1 IC601-8
0.1V/500nsec.cm
REC/PLAY



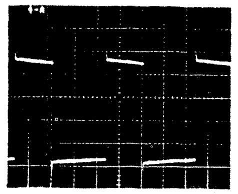
2 IC601-10
2V/10.0msec.cm
REC/PLAY



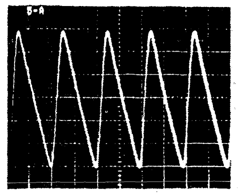
3 IC601-16
2V/10.0msec.cm
REC



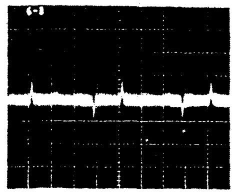
4 IC601-17
1V/10.0msec.cm
REC



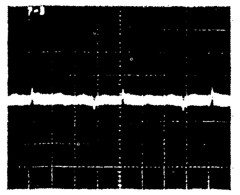
5 IC601-24
0.2V/200nsec.cm
REC/PLAY



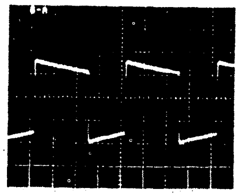
6 IC601-27
50mV/10.0msec.cm
PLAY



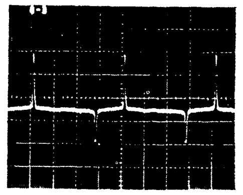
7 IC601-28
50mV/10.0msec.cm
PLAY



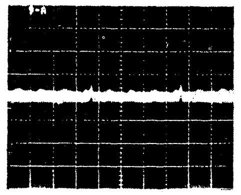
8 IC601-30
1V/10.0msec.cm
REC



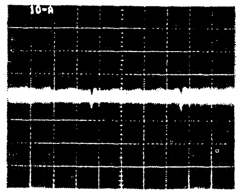
9 IC601-30
1V/10.0msec.cm
PLAY



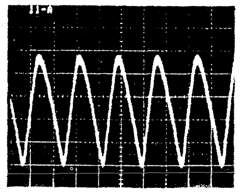
10 IC601-32
50mV/10.0msec.cm
REC/PLAY



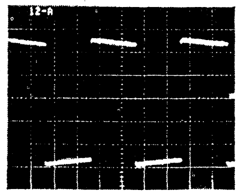
11 IC601-33
50mV/10.0msec.cm
REC/PLAY



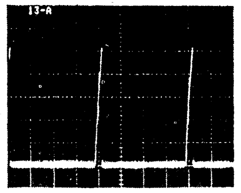
12 IC601-36
0.1V/200nsec.cm
REC/PLAY



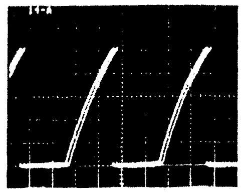
13 IC601-48
1V/10.0msec.cm
REC/PLAY



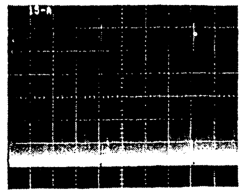
14 IC601-56
0.5V/5.0msec.cm
REC/PLAY



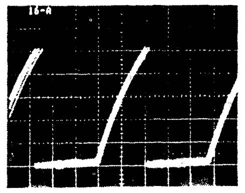
15 IC601-57
0.5V/5.0msec.cm
REC/PLAY



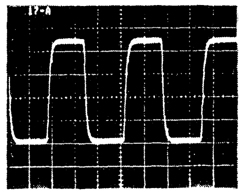
16 IC601-58
0.5V/5.0msec.cm
REC/PLAY



17 IC601-60
0.5V/10.0msec.cm
REC/PLAY

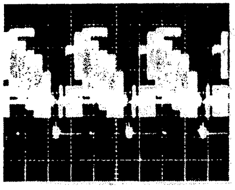


18 IC601-61
1V/1.0msec.cm
REC/PLAY

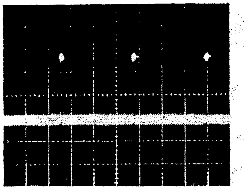


DIGITAL PROCESS

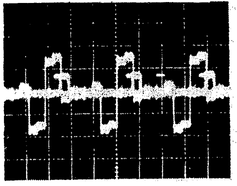
1 TP1001
0.2V/20.0μ sec.cm
EE/PinP



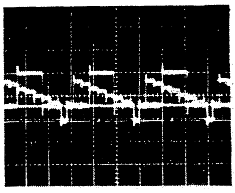
2 TP1004
2V/20.0μ sec.cm
EE/PinP



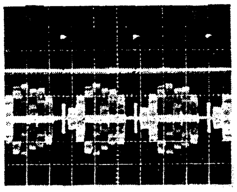
3 TP1007
2V/20.0μ sec.cm
PinP



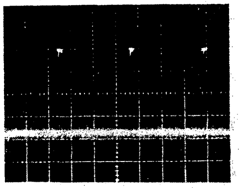
4 TP1008
0.5V/20.0μ sec.cm
PinP



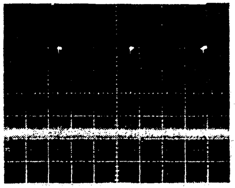
5 TP1012/TP1011
0.2V/20.0μ sec.cm
V.MEMO



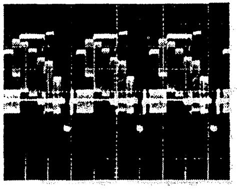
6 TP1012
0.2V/20.0μ sec.cm
PinP



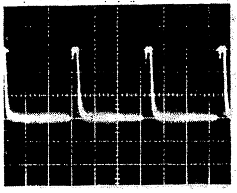
7 TP1013
0.2V/20.0μ sec.cm
PinP



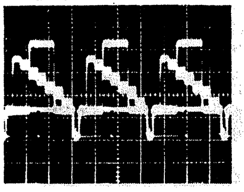
8 TP1014
0.5V/20.0μ sec.cm
PinP



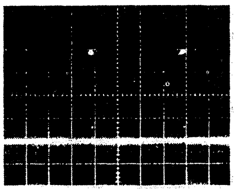
10 IC1002-4
0.2V/20.0μ sec.cm
EE/PinP



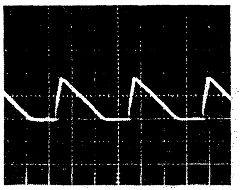
11 IC1002-5
0.2V/20.0μ sec.cm
EE/PinP



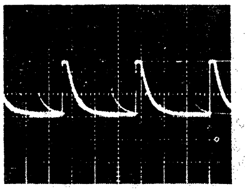
12 IC1002-6
1V/5.0msec.cm
EE/PinP



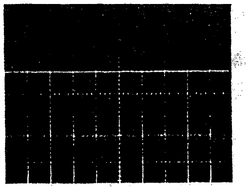
13 IC1002-7
1V/20.0μ sec.cm
EE/PinP



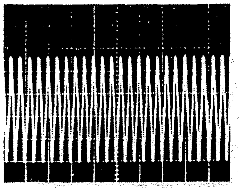
14 IC1002-9
1V/20.0μ sec.cm
EE/PinP



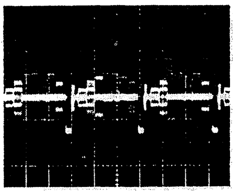
15 IC1002-10
0.1V/2.0μ sec.cm
EE/PinP



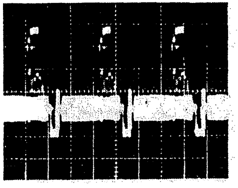
16 IC1002-12
0.2V/5.0μ sec.cm
EE/PinP



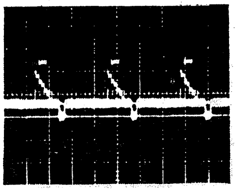
17 IC1002-14
0.2V/20.0μ sec.cm
EE



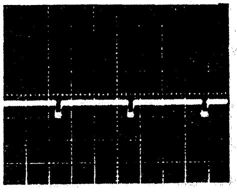
18 IC1002-14
0.2V/20.0μ sec.cm
PinP



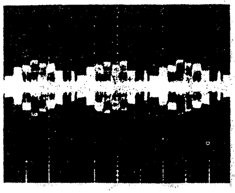
19 IC1002-16
0.2V/20.0μ sec.cm
PinP



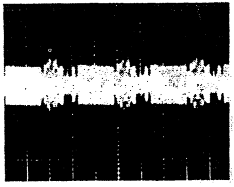
20 IC1002-16
0.2V/20.0μ sec.cm
EE



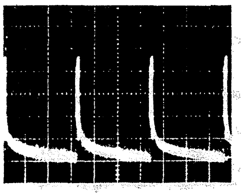
21 IC1002-17
0.1V/20.0μ sec.cm
EE



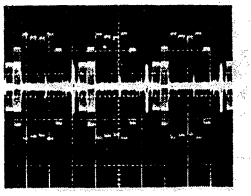
22 IC1002-17
0.1V/20.0μ sec.cm
PinP



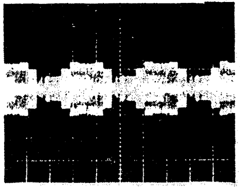
23 IC1002-19
0.1V/20.0μ sec.cm
EE/PinP



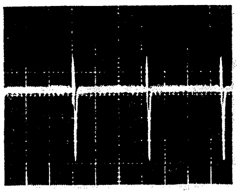
24 IC1002-22
0.2V/20.0μ sec.cm
PinP



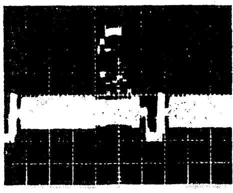
25 IC1002-24
0.1V/20.0μ sec.cm
PinP



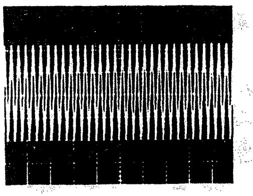
26 IC1002-25
0.2V/20.0μ sec.cm
PinP



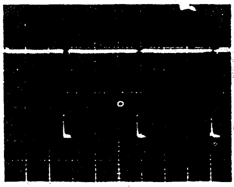
27 IC1003-3
20mV/1.0msec.cm
PinP



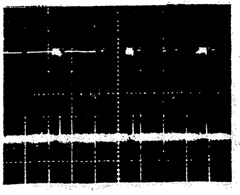
28 IC1003-6
0.5V/200μ sec.cm
EE/PinP



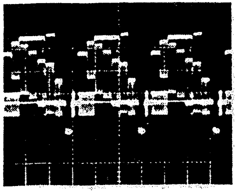
29 IC1003-9
1V/20.0μ sec.cm
EE/PinP



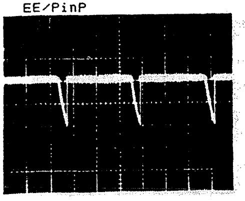
30 IC1003-10
1V/20.0μ sec.cm
EE/PinP



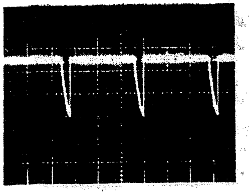
31 IC1003-11
0.2V/20.0μ sec.cm
EE/PinP



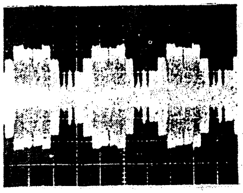
32 IC1004-1
0.5V/20.0μ sec.cm
EE/PinP



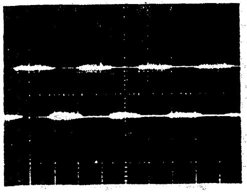
33 IC1004-2
0.5V/20.0μ sec.cm
EE/PinP



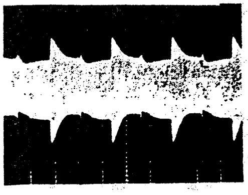
34 IC1004-5
50mV/20.0μ sec.cm
EE/PinP



35 IC1004-9
2V/50.0μ sec.cm
EE/PinP

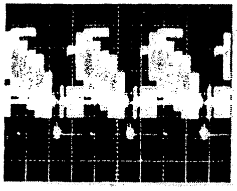


36 IC1004-11
0.2V/50.0μ sec.cm
EE/PinP

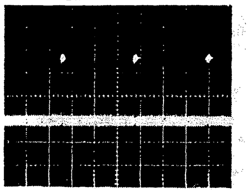


DIGITAL PROCESS

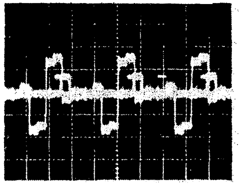
1 TP1001
0.2V/20.0μ sec.cm
EE/PinP



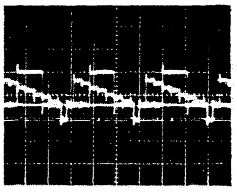
2 TP1004
2V/20.0μ sec.cm
EE/PinP



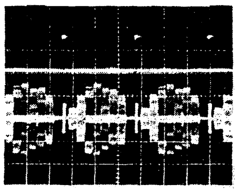
3 TP1007
2V/20.0μ sec.cm
PinP



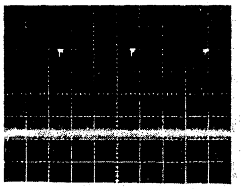
4 TP1008
0.5V/20.0μ sec.cm
PinP



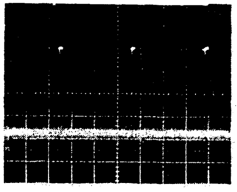
5 TP1012/TP1011
0.2V/20.0μ sec.cm
V.MEMO



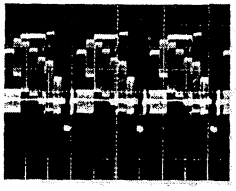
6 TP1012
0.2V/20.0μ sec.cm
PinP



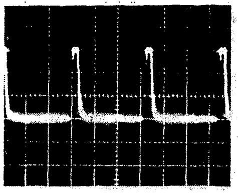
7 TP1013
0.2V/20.0μ sec.cm
PinP



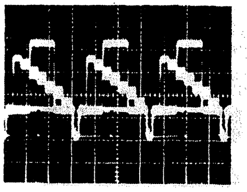
8 TP1014
0.5V/20.0μ sec.cm
PinP



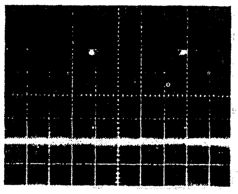
10 IC1002-4
0.2V/20.0μ sec.cm
EE/PinP



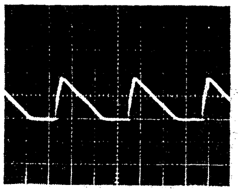
11 IC1002-5
0.2V/20.0μ sec.cm
EE/PinP



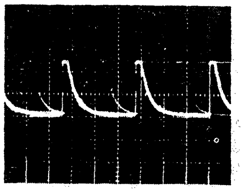
12 IC1002-6
1V/5.0msec.cm
EE/PinP



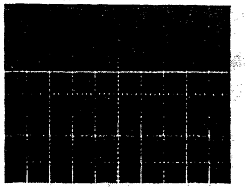
13 IC1002-7
1V/20.0μ sec.cm
EE/PinP



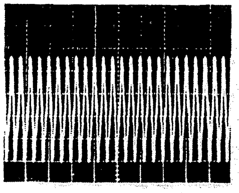
14 IC1002-9
1V/20.0μ sec.cm
EE/PinP



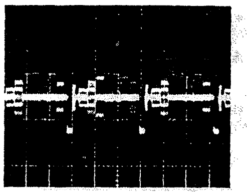
15 IC1002-10
0.1V/2.0μ sec.cm
EE/PinP



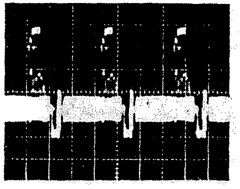
16 IC1002-12
0.2V/5.0μ sec.cm
EE/PinP



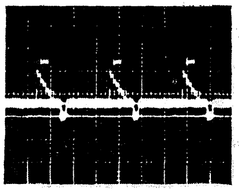
17 IC1002-14
0.2V/20.0μ sec.cm
EE



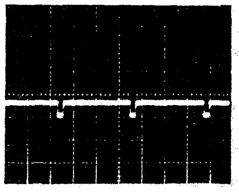
18 IC1002-14
0.2V/20.0μ sec.cm
PinP



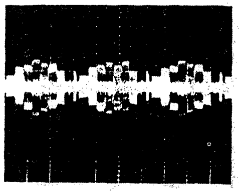
19 IC1002-16
0.2V/20.0μ sec.cm
PinP



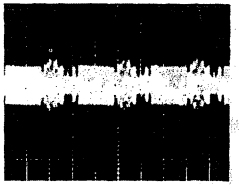
20 IC1002-16
0.2V/20.0μ sec.cm
EE



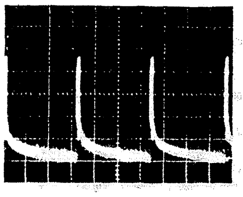
21 IC1002-17
0.1V/20.0μ sec.cm
EE



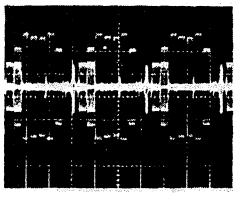
22 IC1002-17
0.1V/20.0μ sec.cm
PinP



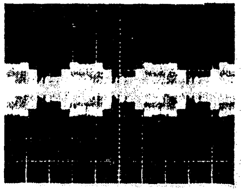
23 IC1002-19
0.1V/20.0μ sec.cm
EE/PinP



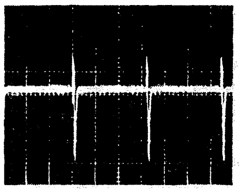
24 IC1002-22
0.2V/20.0μ sec.cm
PinP



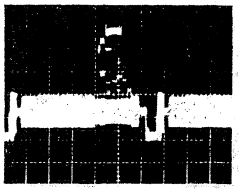
25 IC1002-24
0.1V/20.0μ sec.cm
PinP



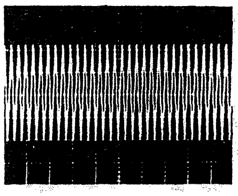
26 IC1002-25
0.2V/20.0μ sec.cm
PinP



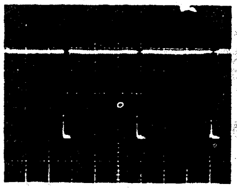
27 IC1003-3
20mV/1.0msec.cm
PinP



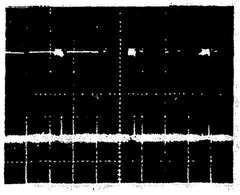
28 IC1003-6
0.5V/200μ sec.cm
EE/PinP



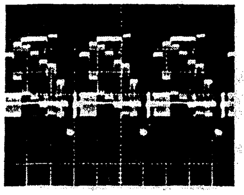
29 IC1003-9
1V/20.0μ sec.cm
EE/PinP



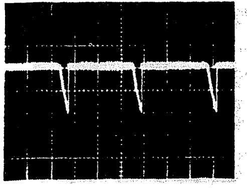
30 IC1003-10
1V/20.0μ sec.cm
EE/PinP



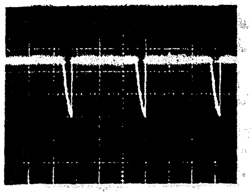
31 IC1003-11
0.2V/20.0μ sec.cm
EE/PinP



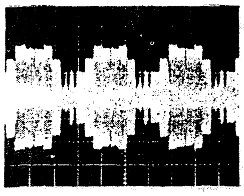
32 IC1004-1
0.5V/20.0μ sec.cm
EE/PinP



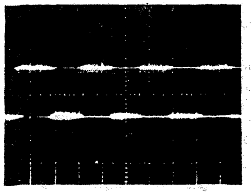
33 IC1004-2
0.5V/20.0μ sec.cm
EE/PinP



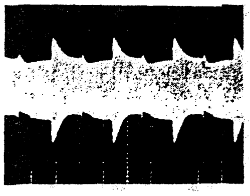
34 IC1004-5
50mV/20.0μ sec.cm
EE/PinP



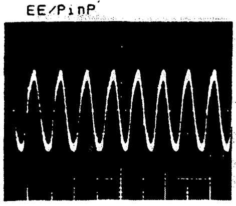
35 IC1004-9
2V/50.0μ sec.cm
EE/PinP



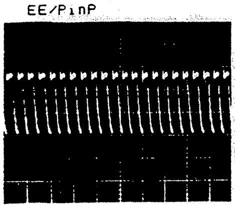
36 IC1004-11
0.2V/50.0μ sec.cm
EE/PinP



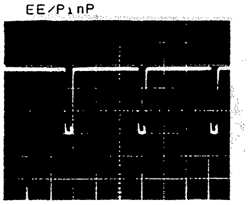
37 IC1004-13
0.1V/20.0μ sec.cm
EE/PinP



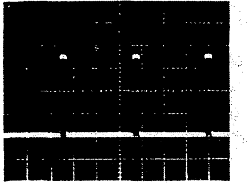
38 IC1004-19
0.2V/1.0μ sec.cm
EE/PinP



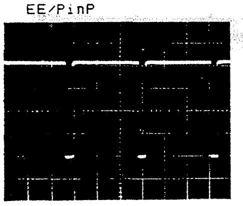
39 IC1004-27
2V/20.0μ sec.cm
EE/PinP



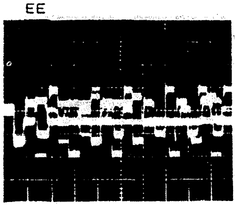
40 IC1004-29
0.5V/20.0μ sec.cm
EE/PinP



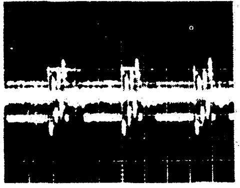
41 IC1004-30
1V/20.0μ sec.cm
EE/PinP



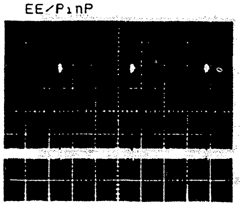
42 IC1005-1
0.1V/20.0μ sec.cm
EE



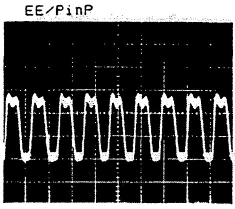
43 IC1005-1
0.1V/20.0μ sec.cm
PinP



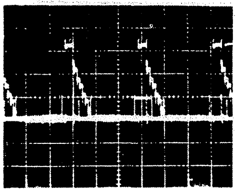
44 IC1005-3
0.2V/20.0μ sec.cm
EE/PinP



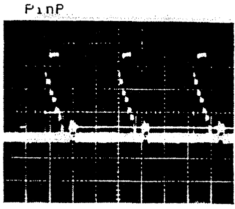
45 IC1005-5
0.1V/2.0msec.cm
EE/PinP



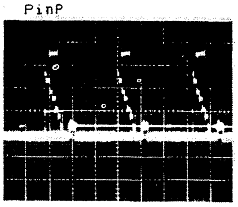
46 IC1005-8
0.1V/20.0μ sec.cm
PinP



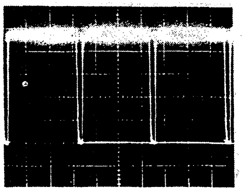
47 IC1005-12
0.2V/20.0μ sec.cm
PinP



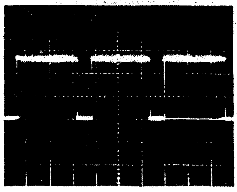
48 IC1005-14
0.5V/20.0μ sec.cm
PinP



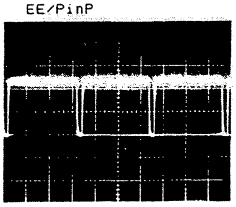
49 IC1005-15
1V/20.0μ sec.cm
EE/PinP



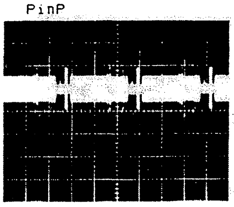
50 IC1005-16
1V/20.0μ sec.cm
EE/PinP



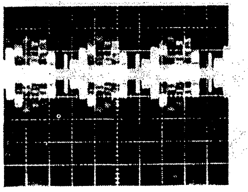
51 IC1005-17
2V/20.0μ sec.cm
EE/PinP



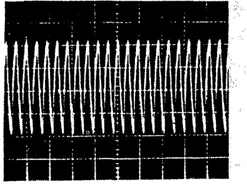
52 IC1005-18
0.2V/20.0μ sec.cm
PinP



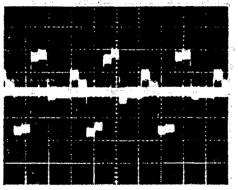
53 IC1005-18
0.2V/20.0μ sec.cm
EE



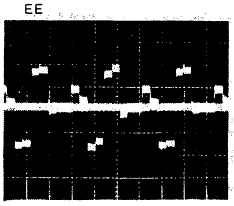
54 IC1005-20
0.1V/500nsec.cm
EE/PinP



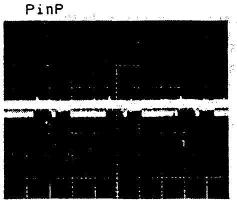
55 IC1005-22
0.2V/20.0μ sec.cm
EE/PinP



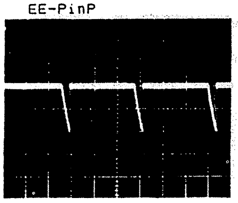
56 IC1005-24
0.1V/20.0μ sec.cm
EE



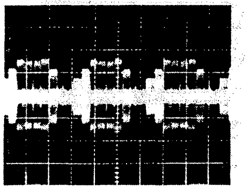
57 IC1005-24
0.1V/20.0μ sec.cm
PinP



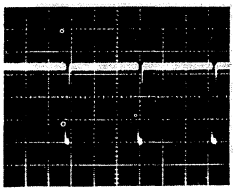
58 IC1006-1
0.5V/20.0μ sec.cm
EE-PinP



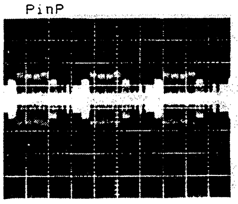
59 IC1006-3
0.1V/20.0μ sec.cm
PinP



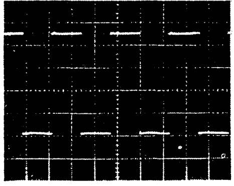
60 IC1006-4
0.2V/20.0μ sec.cm
PinP



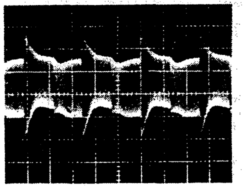
61 IC1006-5
0.1V/20.0μ sec.cm
PinP



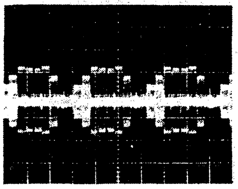
62 IC1006-9
1V/50.0μ sec.cm
PinP



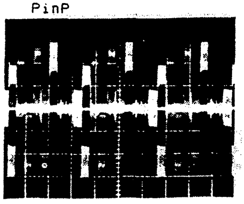
63 IC1006-11
0.2V/50.0μ sec.cm
PinP



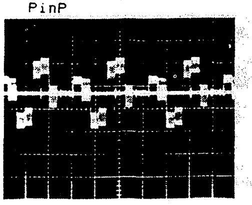
64 IC1006-15
0.1V/20.0μ sec.cm
PinP



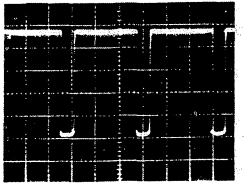
65 IC1006-20
0.2V/20.0μ sec.cm
PinP



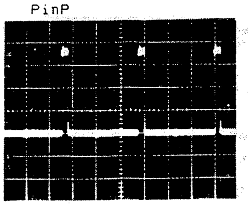
66 IC1006-21
0.5V/20.0μ sec.cm
PinP



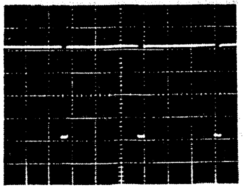
67 IC1006-25
1V/20.0μ sec.cm
PinP



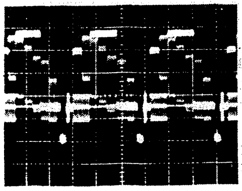
68 IC1006-29
0.2V/20.0μ sec.cm
PinP



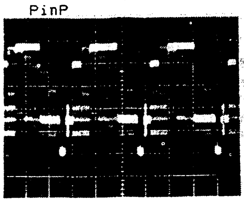
69 IC1006-30
1V/20.0μ sec.cm
PinP



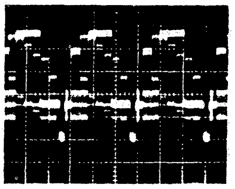
70 IC1030-2
0.2V/20.0μ sec.cm
PinP



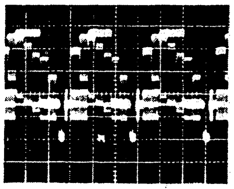
71 IC1030-3
0.2V/20.0μ sec.cm
PinP



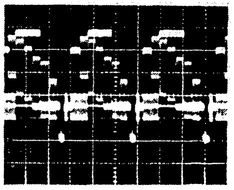
72 IC1030-5
0.2V/20.0μ sec.cm
PinP



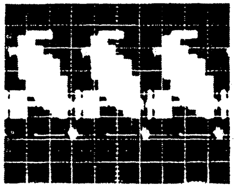
73 IC1030-12
0.2V/20.0μ sec.cm
PinP



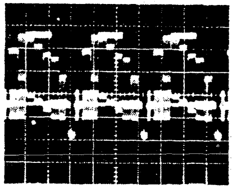
74 IC1030-15
0.2V/20.0μ sec.cm
PinP



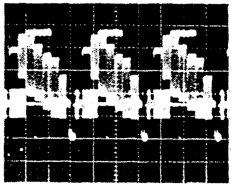
75 IC1031-1
0.2V/20.0μ sec.cm
EE/PinP



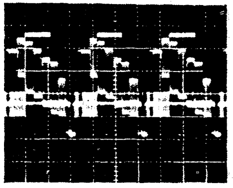
76 IC1031-2
20mV/20.0μ sec.cm
PinP



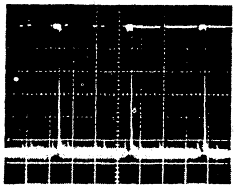
77 IC1031-6
0.5V/20.0μ sec.cm
EE/PinP



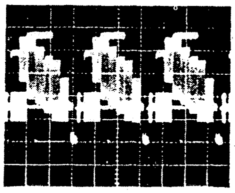
78 IC1031-7
0.2V/20.0μ sec.cm
PinP



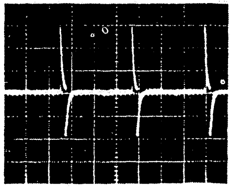
79 IC1031-8
2V/20.0μ sec.cm
EE/PinP



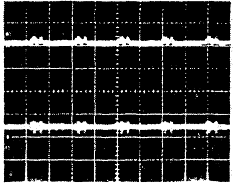
80 IC1031-9
0.2V/20.0μ sec.cm
EE/PinP



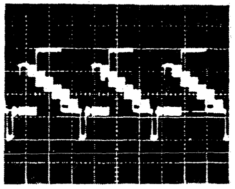
81 IC1031-10
2V/20.0μ sec.cm
PinP



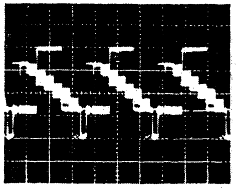
82 IC1031-13
0.2V/20.0μ sec.cm
PinP



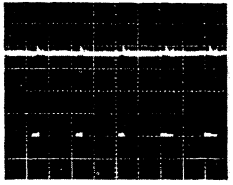
83 IC1031-14
0.5V/20.0μ sec.cm
PinP



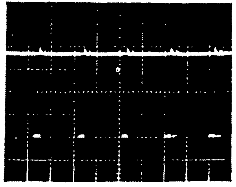
84 IC1031-16
0.5V/20.0μ sec.cm
PinP



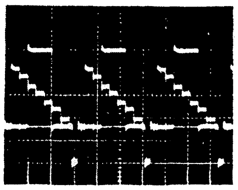
85 IC1011-8
1V/100μ sec.cm
PinP



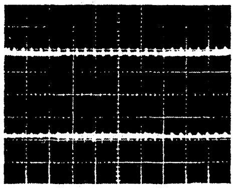
86 IC1011-8
1V/100μ sec.cm
EE/PinP



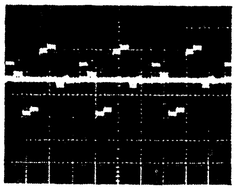
87 IC1011-15
0.2V/20.0μ sec.cm
EE/PinP



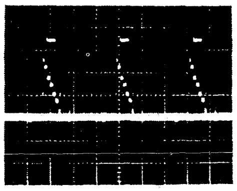
88 IC1012-5
1V/500μ sec.cm
EE/PinP



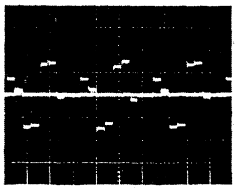
89 IC1012-15
0.2V/20.0μ sec.cm
PinP



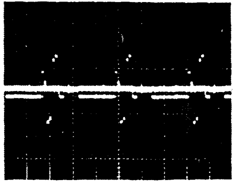
90 IC1025-3
0.2V/20.0μ sec.cm
PinP



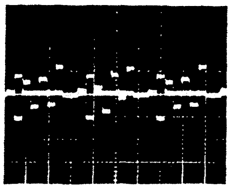
91 IC1026-3
0.2V/20.0μ sec.cm
EE



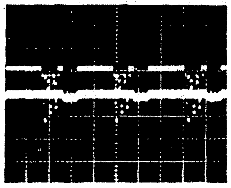
92 IC1026-3
0.2V/20.0μ sec.cm
PinP



93 IC1027-3
0.2V/20.0μ sec.cm
EE



94 IC1027-3
0.2V/20.0μ sec.cm
PinP



REPLACEMENT PARTS LIST

SYMBOL-NO	P-NO	DESCRIPTION
		CAPACITORS
C 201	0208374	CERAMIC DISC 10000PF+-20% 16V
C 202	0208374	CERAMIC DISC 10000PF+-20% 16V
C 203	0208374	CERAMIC DISC 10000PF+-20% 16V
C 204	0208366	CERAMIC DISC 820PF+-10% 50V
C 205	0208354	CERAMIC DISC 33PF+-5% 50V
C 207	0208375	CERAMIC DISC 22000PF+80-20% 25V
C 208	0208357	CERAMIC DISC 56PF+-5% 50V
C 211	0208353	CERAMIC DISC 27PF+-5% 50V
C 216	0208375	CERAMIC DISC 22000PF+80-20% 25V
C 223	0208360	CERAMIC DISC 100PF+-10% 50V
C 225	0256135	ELECTROLYTIC 10UF 16V
C 228	0208375	CERAMIC DISC 22000PF+80-20% 25V
C 230	0208375	CERAMIC DISC 22000PF+80-20% 25V
C 233	0208374	CERAMIC DISC 10000PF+-20% 16V
C 239	0256674	ELECTROLYTIC 4.7UF 35V
C 242	0256154	ELECTROLYTIC 4.7UF 25V
C 243	0256152	ELECTROLYTIC 2.2UF 50V
C 309	0208355	CERAMIC DISC 39PF+-5% 50V
C 310	0208351	CERAMIC DISC 18PF+-5% 50V
C 313	0208365	CERAMIC DISC 680PF+-10% 50V
C 314	0208352	CERAMIC DISC 22PF+-5% 50V
C 316	0208357	CERAMIC DISC 56PF+-5% 50V
C 318	0208355	CERAMIC DISC 39PF+-5% 50V
C 351	0208374	CD 10000PF+-20% 16V (FOR DSW)
C 352	0208358	CD 68PF+-5% 50V (FOR DSW)
C 353	0204253	MYLAR 0.068UF+-10% 50V (FOR DSW)
C 354	0207149	ELECTROLYTIC 3.3UF 50V (FOR DSW)
C 355	0208375	CD 22000PF+80-20% 25V (FOR DSW)
C 356	0207085	ELECTROLYTIC 47UF 10V (FOR DSW)
C 357	0208375	CD 22000PF+80-20% 25V (FOR DSW)
C 358	0207150	ELECTROLYTIC 4.7UF 25V (FOR DSW)
C 359	0207079	ELECTROLYTIC 33UF 10V (FOR DSW)
C 360	0207153	ELECTROLYTIC 10UF 16V (FOR DSW)
C 361	0208354	CD 33PF+-5% 50V (FOR DSW)
C 402L	0256612	ELECTROLYTIC 0.47UF 50V
C 409L	0208348	CERAMIC DISC 10PF+-5% 50V
C 409R	0208348	CERAMIC DISC 10PF+-5% 50V
C 411L	0256626	ELECTROLYTIC 47UF 6.3V
C 413	0256606	ELECTROLYTIC 1UF 50V
C 415L	0256606	ELECTROLYTIC 1UF 50V
C 416R	0256614	ELECTROLYTIC 10UF 16V
C 419	0208374	CERAMIC DISC 10000PF+-20% 16V
C 420	0208374	CERAMIC DISC 10000PF+-20% 16V
C 421	0256626	ELECTROLYTIC 47UF 6.3V
C 422	0208374	CERAMIC DISC 10000PF+-20% 16V
C 430	0256606	ELECTROLYTIC 1UF 50V
C 431L	0256612	ELECTROLYTIC 0.47UF 50V
C 436R	0256614	ELECTROLYTIC 10UF 16V
C 501L	0207153	ELECTROLYTIC 10UF 16V
C 501R	0207153	ELECTROLYTIC 10UF 16V
C 503	0208374	CERAMIC DISC 10000PF+-20% 16V
C 504	0208374	CERAMIC DISC 10000PF+-20% 16V
C 509	0207147	ELECTROLYTIC 2.2UF 50V
C 510	0208375	CERAMIC DISC 22000PF+80-20% 25V
C 512	0208365	CERAMIC DISC 680PF+-10% 50V
C 516	0208374	CERAMIC DISC 10000PF+-20% 16V
C 526L	0208374	CERAMIC DISC 10000PF+-20% 16V
C 526R	0208374	CERAMIC DISC 10000PF+-20% 16V
C 528L	0208374	CERAMIC DISC 10000PF+-20% 16V
C 528R	0208374	CERAMIC DISC 10000PF+-20% 16V
C 531	0208374	CERAMIC DISC 10000PF+-20% 16V
C 532	0208363	CERAMIC DISC 330PF+-10% 50V
C 534	0208363	CERAMIC DISC 330PF+-10% 50V
C 539	0208374	CERAMIC DISC 10000PF+-20% 16V
C 547	0208374	CERAMIC DISC 10000PF+-20% 16V
C 549	0208374	CERAMIC DISC 10000PF+-20% 16V
C 551	0208365	CERAMIC DISC 680PF+-10% 50V
C 553	0208375	CERAMIC DISC 22000PF+80-20% 25V
C 555	0204241	MYLAR 0.001UF+-10% 50V
C 557	0208374	CERAMIC DISC 10000PF+-20% 16V
C 558	0208375	CERAMIC DISC 22000PF+80-20% 25V
C 560	0208374	CERAMIC DISC 10000PF+-20% 16V
C 561L	0256614	ELECTROLYTIC 10UF 16V
C 561R	0256614	ELECTROLYTIC 10UF 16V
C 565	0208374	CERAMIC DISC 10000PF+-20% 16V
C 568L	0208354	CERAMIC DISC 33PF+-5% 50V
C 568R	0208354	CERAMIC DISC 33PF+-5% 50V
C 572	0208360	CERAMIC DISC 100PF+-10% 50V
C 573	0208367	CERAMIC DISC 1000PF+-10% 50V
C 574	0208367	CERAMIC DISC 1000PF+-10% 50V
C 575	0208367	CERAMIC DISC 1000PF+-10% 50V
C 576	0208367	CERAMIC DISC 1000PF+-10% 50V
C 580	0208375	CERAMIC DISC 22000PF+80-20% 25V
C 608	0208375	CERAMIC DISC 22000PF+80-20% 25V
C 613	0208367	CERAMIC DISC 1000PF+-10% 50V
C 614	0208374	CERAMIC DISC 10000PF+-20% 16V
C 617	0208375	CERAMIC DISC 22000PF+80-20% 25V
C 618	0208368	CERAMIC DISC 1500PF+-20% 50V
C 623	0208374	CERAMIC DISC 10000PF+-20% 16V
C 624	0208374	CERAMIC DISC 10000PF+-20% 16V
C 625	0208374	CERAMIC DISC 10000PF+-20% 16V
C 632	0208371	CERAMIC DISC 4700PF+-20% 50V
C 633	0208371	CERAMIC DISC 4700PF+-20% 50V
C 634	0208371	CERAMIC DISC 4700PF+-20% 50V
C 635	0208371	CERAMIC DISC 4700PF+-20% 50V
C 653	0208368	CERAMIC DISC 1500PF+-20% 50V
C 701	0256489	ELECTROLYTIC 0.047F 5.5V
C 702	0256160	ELECTROLYTIC 47UF 6.3V
C 703	0208374	CERAMIC DISC 10000PF+-20% 16V
C 704	0208375	CERAMIC DISC 22000PF+80-20% 25V
C 705	0208375	CERAMIC DISC 22000PF+80-20% 25V
C 709	0256153	CAPACITOR ELECTROLYTIC 3.3MF 50V
C 710	0208374	CERAMIC DISC 10000PF+-20% 16V
C 711	0256160	ELECTROLYTIC 47UF 6.3V
C 713	0256150	ELECTROLYTIC 0.47UF 50V
C 714	0256164	ELECTROLYTIC 0.1UF 50V
C 715	0256160	ELECTROLYTIC 47UF 6.3V
C 716	0208446	CD 18PF+-5% 50V (FOR AU)
C 716	5058562	TRIMMER 20PF (FOR DSW)
C 718	0256731	ELECTROLYTIC 220UF 6.3V
C 771	0256156	ELECTROLYTIC 22UF 16V
C 772	0208375	CERAMIC DISC 22000PF+80-20% 25V
C 773	0256155	ELECTROLYTIC 10UF 16V
C 774	0239375	CERAMIC DISC 22000PF+80-20% 25V
C 801	0208357	CERAMIC DISC 56PF+-5% 50V
C 810	0208374	CERAMIC DISC 10000PF+-20% 16V
C 811	0208374	CERAMIC DISC 10000PF+-20% 16V
C 812	0208374	CERAMIC DISC 10000PF+-20% 16V
C 815	0208363	CERAMIC DISC 330PF+-10% 50V
C 825	0208374	CERAMIC DISC 10000PF+-20% 16V
C 832	0208374	CERAMIC DISC 10000PF+-20% 16V
C 834	0208374	CERAMIC DISC 10000PF+-20% 16V
C 836	0208374	CERAMIC DISC 10000PF+-20% 16V
C 838	0208374	CERAMIC DISC 10000PF+-20% 16V
C 876	0256888	ELECTROLYTIC 4700UF 35V
C 880	0256873	ELECTROLYTIC 3300UF 16V
C 884	0256859	ELECTROLYTIC 1000UF 16V
C 902	0208375	CERAMIC DISC 22000PF+80-20% 25V
C 903	0208375	CERAMIC DISC 22000PF+80-20% 25V
C 904	0208354	CERAMIC DISC 33PF+-5% 50V
C 905	0208354	EERAMIC DISC 33PF+-5% 50V
C 906	0208375	CERAMIC DISC 22000PF+80-20% 25V
C 907	0208374	CERAMIC DISC 10000PF+-20% 16V
C 908	0208374	CERAMIC DISC 10000PF+-20% 16V
C 912	0208374	CERAMIC DISC 10000PF+-20% 16V
C 913	0208374	CERAMIC DISC 10000PF+-20% 16V
C 915	0208375	CERAMIC DISC 22000PF+80-20% 25V
C 916	0208375	CERAMIC DISC 22000PF+80-20% 25V
C 918	0208374	CERAMIC DISC 10000PF+-20% 16V
C 921	0208360	CERAMIC DISC 100PF+-10% 50V
C 922	0208360	CERAMIC DISC 100PF+-10% 50V
C 924	0208375	CERAMIC DISC 22000PF+80-20% 25V
C1001	0256138	ELECTROLYTIC 22UF 10V
C1002	0256622	ELECTROLYTIC 33UF 16V
C1003	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1005	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1006	0256613	ELECTROLYTIC 4.7UF 35V
C1008	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1009	0201056	CERAMIC CHIP 0.0015UF+-10% 50V
C1010	0201072	CERAMIC CHIP 0.047UF+80-20% 25V
C1011	0256613	ELECTROLYTIC 4.7UF 35V
C1012	0201054	CERAMIC CHIP 1000PF+-10% 50V
C1013	0201054	CERAMIC CHIP 1000PF+-10% 50V

SYMBOL-NO	P-NO	DESCRIPTION
C1014	0256609	ELECTROLYTIC 0.1UF 50V
C1015	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1016	0256607	ELECTROLYTIC 47UF 25V
C1017	0256606	ELECTROLYTIC 1UF 50V
C1018	0256612	ELECTROLYTIC 0.47UF 50V
C1020	0201072	CERAMIC CHIP 0.047UF+80-20% 25V
C1021	0201072	CERAMIC CHIP 0.047UF+80-20% 25V
C1022	0201054	CERAMIC CHIP 1000PF+-10% 50V
C1023	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1024	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1025	0256606	ELECTROLYTIC 1UF 50V
C1026	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1027	0256607	ELECTROLYTIC 47UF 25V
C1028	0256606	ELECTROLYTIC 1UF 50V
C1029	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1030	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1031	0201090	CERAMIC CHIP 15PF+-5% 50V
C1032	0201040	CERAMIC CHIP 560PF+-5% 50V
C1033	0201054	CERAMIC CHIP 1000PF+-10% 50V
C1034	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1036	0256789	ELECTROLYTIC 470UF 10V
C1037	0256835	ELECTROLYTIC 1UF 50V
C1039	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1040	0256614	ELECTROLYTIC 10UF 16V
C1041	0256607	ELECTROLYTIC 47UF 25V
C1042	0201035	CERAMIC CHIP 220PF+-5% 50V
C1043	0256627	ELECTROLYTIC 47UF 16V
C1044	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1045	0256606	ELECTROLYTIC 1UF 50V
C1046	0201072	CERAMIC CHIP 0.047UF+80-20% 25V
C1048	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1049	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1050	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1053	0201086	CERAMIC CHIP 8PF+-0.5PF
C1054	0201091	CERAMIC CHIP 18PF+-5% 50V
C1055	0201072	CERAMIC CHIP 0.047UF+80-20% 25V
C1056	0256606	ELECTROLYTIC 1UF 50V
C1058	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1059	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1060	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1061	0256607	ELECTROLYTIC 47UF 25V
C1062	0256606	ELECTROLYTIC 1UF 50V
C1063	0201072	CERAMIC CHIP 0.047UF+80-20% 25V
C1064	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1065	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C1066	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1069	0256197	ELECTROLYTIC 2.2UF 50V
C1070	0256607	ELECTROLYTIC 47UF 25V
C1071	0256607	ELECTROLYTIC 47UF 25V
C1072	0256607	ELECTROLYTIC 47UF 25V
C1073	0256606	ELECTROLYTIC 1UF 50V
C1074	0256612	ELECTROLYTIC 0.47UF 50V
C1075	0201072	CERAMIC CHIP 0.047UF+80-20% 25V
C1076	0201072	CERAMIC CHIP 0.047UF+80-20% 25V
C1078	0201054	CERAMIC CHIP 1000PF+-10% 50V
C1079	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1080	0256627	ELECTROLYTIC 47UF 16V
C1081	0201054	CERAMIC CHIP 1000PF+-10% 50V
C1082	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1083	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1084	0256606	ELECTROLYTIC 1UF 50V
C1085	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1086	0256607	ELECTROLYTIC 47UF 25V
C1087	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1088	0256606	ELECTROLYTIC 1UF 50V
C1089	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1090	0201090	CERAMIC CHIP 15PF+-5% 50V
C1091	0201054	CERAMIC CHIP 1000PF+-10% 50V
C1092	0201040	CERAMIC CHIP 560PF+-5% 50V
C1093	0201039	CERAMIC CHIP 470PF+-5% 50V
C1094	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1095	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1096	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1098	0201807	CERAMIC CHIP 1UF 16V
C1099	0201039	CERAMIC CHIP 470PF+-5% 50V
C1100	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1101	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1102	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1104	0201807	CERAMIC CHIP 0.01UF 16V
C1105	0201009	CERAMIC CHIP 0.022UF+80-20% 25V
C1106	0256630	ELECTROLYTIC 100UF 6.3V
C1107	0201009	CERAMIC CHIP 0.022UF+80-20% 25V
C1108	0256630	ELECTROLYTIC 100UF 6.3V
C1109	0201009	CERAMIC CHIP 0.022UF+80-20% 25V
C1110	0256630	ELECTROLYTIC 100UF 6.3V
C1111	0201077	CERAMIC CHIP 27PF+-5% 50V
C1112	0201077	CERAMIC CHIP 27PF+-5% 50V
C1113	0256630	ELECTROLYTIC 100UF 6.3V
C1114	0201009	CERAMIC CHIP 0.022UF+80-20% 25V
C1115	0256788	ELECTROLYTIC 1000UF 6.3V
C1116	0256627	ELECTROLYTIC 47UF 16V
C1117	0201072	CERAMIC CHIP 0.047UF+80-20% 25V
C1118	0201072	CERAMIC CHIP 0.047UF+80-20% 25V
C1119	0201072	CERAMIC CHIP 0.047UF+80-20% 25V
C1120	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1121	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1122	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1123	0256606	ELECTROLYTIC 1UF 50V
C1124	0201054	CERAMIC CHIP 1000PF+-10% 50V
C1125	0201064	CERAMIC CHIP 0.015UF+80-20% 50V
C1126	0201031	CERAMIC CHIP 100PF+-5% 50V
C1127	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C1128	0256783	ELECTROLYTIC 100UF 16V
C1129	0201086	CERAMIC CHIP 7PF+-0.5PF
C1130	0201086	CERAMIC CHIP 7PF+-0.5PF
C1131	0201054	CERAMIC CHIP 1000PF+-10% 50V
C1132	0201041	CERAMIC CHIP 680PF+-5% 50V
C1133	0201009	CERAMIC CHIP 0.022UF+80-20% 25V
C1134	0256627	ELECTROLYTIC 47UF 16V
C1135	0201009	CERAMIC CHIP 0.022UF+80-20% 25V
C1136	0201009	CERAMIC CHIP 0.022UF+80-20% 25V
C1137	0256630	ELECTROLYTIC 100UF 6.3V
C1139	0256622	ELECTROLYTIC 33UF 16V
C1140	0256613	ELECTROLYTIC 4.7UF 35V
C1141	0256606	ELECTROLYTIC 1UF 50V
C1142	0256614	ELECTROLYTIC 10UF 16V
C1143	0201009	CERAMIC CHIP 0.022UF+80-20% 25V
C1144	0201092	CERAMIC CHIP 22PF+-5% 50V
C1145	0256834	ELECTROLYTIC 10UF 16V
C1146	0256781	ELECTROLYTIC 470UF 6.3V
C1147	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C1149	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C1150	0256781	ELECTROLYTIC 470UF 6.3V
C1151	0201072	CERAMIC CHIP 0.047UF+80-20% 25V
C1152	0201009	CERAMIC CHIP 0.022UF+80-20% 25V
C1153	0256782	ELECTROLYTIC 220UF 10V
C1154	0201009	CERAMIC CHIP 0.022UF+80-20% 25V
C1155	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1156	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C1157	0256782	ELECTROLYTIC 220UF 10V
C1158	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C1159	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C1160	0201009	CERAMIC CHIP 0.022UF+80-20% 25V
C1161	0201009	CERAMIC CHIP 0.022UF+80-20% 25V
C1162	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1163	0201006	CERAMIC CHIP 0.01UF+80-20% 50V
C1164	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C1165	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C1166	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C1167	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C1168	0256630	ELECTROLYTIC 100UF 6.3V
C1169	0256789	ELECTROLYTIC 470UF 10V
C1170	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C1171	0201009	CERAMIC CHIP 0.022UF+80-20% 25V
C1172	0201078	CERAMIC CHIP 39PF+-5% 50V
C1174	0201062	CERAMIC CHIP 0.0068UF+-10% 50V
C1175	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C1176	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C1177	0201039	CERAMIC CHIP 470PF+-5% 50V
C1178	0201072	CERAMIC CHIP 0.047UF+80-20% 25V
C1179	0256606	ELECTROLYTIC 1UF 50V
C1180	0256606	ELECTROLYTIC 1UF 50V
C1181	0201078	CERAMIC CHIP 39PF+-5% 50V
C1183	0201093	CERAMIC CHIP 33PF+-5% 50V
C1184	0201093	CERAMIC CHIP 33PF+-5% 50V
C1185	0201006	CERAMIC CHIP 0.01UF+80-20% 25V

SYMBOL-NO	P-NO	DESCRIPTION
C1186	0201031	CERAMIC CHIP 100PF+-5% 50V
C1187	0201031	CERAMIC CHIP 100PF+-5% 50V
C1188	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C1189	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C1190	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C1191	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C1192	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C1193	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C1194	0201078	CERAMIC CHIP 39PF+-5% 50V
C1195	0201078	CERAMIC CHIP 39PF+-5% 50V
C1199	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C1404	0208375	CERAMIC DISC 22000PF+80-20% 25V
C1406	0208375	CERAMIC DISC 22000PF+80-20% 25V
C1411	0208374	CERAMIC DISC 10000PF+-20% 16V
C1412	0208374	CERAMIC DISC 10000PF+-20% 16V
C1416	0208369	CERAMIC DISC 2200PF+-20% 16V
C1421	0208360	CERAMIC DISC 100PF+-10% 50V
C1422	0208366	CERAMIC DISC 820PF+-10% 50V
C1424	0208375	CERAMIC DISC 22000PF+80-20% 25V
C1425	0256606	ELECTROLYTIC 1UF 50V
C1433	0208351	CERAMIC DISC 18PF+-5% 50V
C1434	0208351	CERAMIC DISC 18PF+-5% 50V
C1517	0208375	CERAMIC DISC 22000PF+80-20% 25V
C1524	0208375	CERAMIC DISC 22000PF+80-20% 25V
C1528	0208375	CERAMIC DISC 22000PF+80-20% 25V
C1537	0208375	CERAMIC DISC 22000PF+80-20% 25V
C1540	0208375	CERAMIC DISC 22000PF+80-20% 25V
C1592	0208375	CERAMIC DISC 22000PF+80-20% 25V
C1631	0208375	CERAMIC DISC 22000PF+80-20% 25V
C1632	0208352	CERAMIC DISC 22PF+-5% 50V
C1633	0208352	CERAMIC DISC 22PF+-5% 50V
C1654	0208375	CERAMIC DISC 22000PF+80-20% 25V
C1801	0208354	CD 33PF+-5% 50V (FOR AU)
C1802	0208357	CD 56PF+-5% 50V (FOR AU)
C1807	0208349	CD 12PF+-5% 50V (FOR AU)
C1808	0208364	CD 470PF+-10% 50V (FOR AU)
C1809	0208374	CD 10000PF+-20% 16V (FOR AU)
C1822	0208349	CD 12PF+-5% 50V (FOR AU)
C1824	0208364	CD 470PF+-10% 50V (FOR AU)
C1825	0208357	CD 56PF+-5% 50V (FOR AU)
C1828	0208364	CD 470PF+-10% 50V (FOR AU)
C1829	0208349	CD 12PF+-5% 50V (FOR AU)
C1832	0208354	CD 33PF+-5% 50V (FOR AU)
C1844	0208375	CD 22000PF+80-20% 25V (FOR AU)
C1845	0208375	CD 22000PF+80-20% 25V (FOR AU)
C2701	0208375	CERAMIC DISC 22000PF+80-20% 25V
C2705	0208375	CERAMIC DISC 22000PF+80-20% 25V
C2706	0256160	ELECTROLYTIC 47UF 6.3V
C2708	0208350	CERAMIC DISC 15PF+-5% 50V
C2709	0208350	CERAMIC DISC 15PF+-5% 50V
CT1001	5058482	TRIMMER 90PF
CT1002	5058482	TRIMMER 90PF
		RESISTORS
R 307	0171015	METAL FILM 68OHM+-5% 1W
R 574	0170471	FUSE RESISTOR 2.2OHM+-5% 1/4W
R 659	0101701	METAL FILM 0.47OHM+-5% 1/2W
R 900	0249681	POSISTOR 4.7OHM
R1003	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R1004	0103860	CHIP RESISITOR 27KOHM+-5% 0.1W
R1005	0103844	CHIP RESISTOR 1.2KOHM+-5% 0.1W
R1006	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R1007	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R1008	0103844	CHIP RESISTOR 1.2KOHM+-5% 0.1W
R1009	0103844	CHIP RESISTOR 1.2KOHM+-5% 0.1W
R1010	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1011	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1012	0103844	CHIP RESISTOR 1.2KOHM+-5% 0.1W
R1013	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1014	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1015	0103844	CHIP RESISTOR 1.2KOHM+-5% 0.1W
R1016	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1017	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1018	0103849	CHIP RESISTOR 3.3KOHM+-5% 0.1W
R1019	0103844	CHIP RESISTOR 1.2KOHM+-5% 0.1W
R1020	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1021	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W

SYMBOL-NO	P-NO	DESCRIPTION
R1022	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R1023	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R1024	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1025	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1026	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R1027	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R1028	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1029	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1030	0103841	CHIP RESISTOR 680OHM+-5% 0.1W
R1031	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1032	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R1033	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R1034	0103858	CHIP RESISTOR 18KOHM+-5% 0.1W
R1035	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R1036	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R1037	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R1038	0103865	CHIP RESISTOR 68KOHM+-5% 0.1W
R1039	0103858	CHIP RESISTOR 18KOHM+-5% 0.1W
R1040	0103857	CHIP RESISTOR 15KOHM+-5% 0.1W
R1041	0103861	CHIP RESISTOR 33KOHM+-5% 0.1W
R1042	0103875	CHIP RESISTOR 470KOHM+-5% 0.1W
R1043	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R1044	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R1045	0103829	CHIP RESISTOR 68OHM+-5% 0.1W
R1046	0103831	CHIP RESISTOR 100OHM+-5% 0.1W
R1047	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R1048	0103866	CHIP RESISTOR 82KOHM+-5% 0.1W
R1049	0103862	CHIP RESISTOR 39KOHM+-5% 0.1W
R1051	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R1054	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R1055	0103849	CHIP RESISTOR 3.3KOHM+-5% 0.1W
R1056	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1057	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1058	0103849	CHIP RESISTOR 3.3KOHM+-5% 0.1W
R1059	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1060	0103852	CHIP RESISTOR 5.6KOHM+-5% 0.1W
R1061	0103861	CHIP RESISTOR 33KOHM+-5% 0.1W
R1062	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R1063	0103846	CHIP RESISTOR 1.8KOHM+-5% 0.1W
R1064	0103848	CHIP RESISTOR 2.7KOHM+-5% 0.1W
R1065	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R1066	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R1067	0103857	CHIP RESISTOR 15KOHM+-5% 0.1W
R1068	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R1069	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R1070	0103858	CHIP RESISTOR 18KOHM+-5% 0.1W
R1071	0103830	CHIP RESISTOR 82OHM+-5% 0.1W
R1072	0103833	CHIP RESISTOR 150OHM+-5% 0.1W
R1073	0103849	CHIP RESISTOR 3.3KOHM+-5% 0.1W
R1074	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R1075	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R1076	0103835	CHIP RESISTOR 220OHM+-5% 0.1W
R1077	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R1078	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R1079	0103857	CHIP RESISTOR 15KOHM+-5% 0.1W
R1080	0103829	CHIP RESISTOR 68OHM+-5% 0.1W
R1081	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R1082	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1083	0103856	CHIP RESISTOR 12KOHM+-5% 0.1W
R1084	0103856	CHIP RESISTOR 12KOHM+-5% 0.1W
R1085	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1086	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R1087	0103856	CHIP RESISTOR 12KOHM+-5% 0.1W
R1088	0103856	CHIP RESISTOR 12KOHM+-5% 0.1W
R1089	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R1090	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1091	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1092	0103857	CHIP RESISTOR 15KOHM+-5% 0.1W
R1093	0103856	CHIP RESISTOR 12KOHM+-5% 0.1W
R1094	0103856	CHIP RESISTOR 12KOHM+-5% 0.1W
R1095	0103866	CHIP RESISTOR 82KOHM+-5% 0.1W
R1096	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R1097	0103862	CHIP RESISTOR 39KOHM+-5% 0.1W
R1098	0103857	CHIP RESISTOR 15KOHM+-5% 0.1W
R1099	0103857	CHIP RESISTOR 15KOHM+-5% 0.1W
R1100	0103861	CHIP RESISTOR 33KOHM+-5% 0.1W
R1101	0103872	CHIP RESISTOR 270KOHM+-5% 0.1W
R1102	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W

SYMBOL-NO	P-NO	DESCRIPTION
R1103	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R1104	0103829	CHIP RESISTOR 680HM+-5% 0.1W
R1105	0103831	CHIP RESISTOR 1000HM+-5% 0.1W
R1106	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R1107	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R1108	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R1109	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R1112	0103852	CHIP RESISTOR 5.6KOHM+-5% 0.1W
R1113	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R1114	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1115	0103844	CHIP RESISTOR 1.2KOHM+-5% 0.1W
R1116	0103844	CHIP RESISTOR 1.2KOHM+-5% 0.1W
R1117	0103852	CHIP RESISTOR 5.6KOHM+-5% 0.1W
R1118	0103861	CHIP RESISTOR 33KOHM+-5% 0.1W
R1119	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R1120	0103844	CHIP RESISTOR 1.2KOHM+-5% 0.1W
R1121	0103858	CHIP RESISTOR 18KOHM+-5% 0.1W
R1122	0103837	CHIP RESISTOR 3300HM+-5% 0.1W
R1123	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R1124	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R1125	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R1126	0103875	CHIP RESISTOR 470KOHM+-5% 0.1W
R1127	0103875	CHIP RESISTOR 470KOHM+-5% 0.1W
R1128	0103875	CHIP RESISTOR 470KOHM+-5% 0.1W
R1129	0103835	CHIP RESISTOR 2200HM+-5% 0.1W
R1130	0103875	CHIP RESISTOR 470KOHM+-5% 0.1W
R1131	0103869	CHIP RESISTOR 150KOHM+-5% 0.1W
R1132	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R1133	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R1134	0103854	CHIP RESISTOR 8.2KOHM+-5% 0.1W
R1135	0103861	CHIP RESISTOR 33KOHM+-5% 0.1W
R1136	0103831	CHIP RESISTOR 1000HM+-5% 0.1W
R1137	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R1138	0103836	CHIP RESISTOR 2700HM+-5% 0.1W
R1139	0103861	CHIP RESISTOR 33KOHM+-5% 0.1W
R1140	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R1141	0103839	CHIP RESISTOR 4700HM+-5% 0.1W
R1142	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1143	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R1144	0103861	CHIP RESISTOR 33KOHM+-5% 0.1W
R1145	0103853	CHIP RESISTOR 6.8KOHM+-5% 0.1W
R1150	0103852	CHIP RESISTOR 5.6KOHM+-5% 0.1W
R1151	0103852	CHIP RESISTOR 5.6KOHM+-5% 0.1W
R1153	0103835	CHIP RESISTOR 2200HM+-5% 0.1W
R1154	0103854	CHIP RESISTOR 8.2KOHM+-5% 0.1W
R1155	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R1156	0103846	CHIP RESISTOR 1.8KOHM+-5% 0.1W
R1157	0103838	CHIP RESISTOR 3900HM+-5% 0.1W
R1158	0103849	CHIP RESISTOR 3.3KOHM+-5% 0.1W
R1159	0103849	CHIP RESISTOR 3.3KOHM+-5% 0.1W
R1160	0103866	CHIP RESISTOR 82KOHM+-5% 0.1W
R1161	0103862	CHIP RESISTOR 39KOHM+-5% 0.1W
R1162	0103864	CHIP RESISTOR 56KOHM+-5% 0.1W
R1163	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R1164	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R1165	0103878	CHIP RESISTOR 820KOHM+-5% 0.1W
R1166	0103842	CHIP RESISTOR 8200HM+-5% 0.1W
R1167	0103862	CHIP RESISTOR 39KOHM+-5% 0.1W
R1168	0103866	CHIP RESISTOR 82KOHM+-5% 0.1W
R1169	0103825	CHIP RESISTOR 330HM+-5% 0.1W
R1171	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R1172	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R1173	0103877	CHIP RESISTOR 680KOHM+-5% 0.1W
R1174	0103877	CHIP RESISTOR 680KOHM+-5% 0.1W
R1175	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R1176	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R1191	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1192	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1193	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1194	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R1195	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R1196	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R1197	0103861	CHIP RESISTOR 33KOHM+-5% 0.1W
R1803	0170481	FUSE RESISTOR 220HM 1/4W(FOR AU)
RT 301	5030006	SEMI VARIABLE 4.7KOHM
RT 351	5030003	SEMI VARIABLE 4700HM (FOR DSW)
RT 501L	5035029	SEMI VARIABLE 47KOHM
RT 501R	5035029	SEMI VARIABLE 47KOHM

SYMBOL-NO	P-NO	DESCRIPTION
RT 503	5035029	SEMI VARIABLE 47KOHM
RT 504	5035031	SEMI VARIABLE 100KOHM
RT 505	5030004	SEMI VARIABLE 1KOHM
RT 601	5030009	SEMI VARIABLE 47KOHM
RT 602	5030013	SEMI VARIABLE 470KOHM
RT 605	5030013	SEMI VARIABLE 470KOHM
RT 606	5030013	SEMI VARIABLE 470KOHM
RT1002	5007434	SEMI VARIABLE 4.7KOHM
RT1003	5007437	RESISTOR SEMI VARIABLE 47K OHM
RT1005	5007434	SEMI VARIABLE 4.7KOHM
RT1006	5007435	SEMI VARIABLE 10KOHM
RT1007	5007435	SEMI VARIABLE 10KOHM
RT1008	5007434	SEMI VARIABLE 4.7KOHM
RT1009	5007437	RESISTOR SEMI VARIABLE 47K OHM
RT1010	5007437	RESISTOR SEMI VARIABLE 47K OHM
RT1011	5007434	SEMI VARIABLE 4.7KOHM
RT1012	5007433	RESISTOR SEMI VARIABLE 2.2K OHM
RT1013	5007433	RESISTOR SEMI VARIABLE 2.2K OHM
RT1401	5035024	SEMI VARIABLE 1KOHM
RT1801	5035032	SEMI VARIABLE 220KOHM (FOR AU)
RT1802	5035033	SEMI VARIABLE 470KOHM (FOR AU)
RT1803	5035027	SEMI VARIABLE 10KOHM (FOR AU)
RT1804	5035027	SEMI VARIABLE 10KOHM (FOR AU)
RT1807	5035029	SEMI VARIABLE 47KOHM (FOR AU)
RV 501	5009147	VARIABLE 50KOHM 4
RV 502	5009147	VARIABLE 50KOHM 4
RV 703	5009114	RESISTOR VARIABLE 500KOHM
RV 705	5020222	SEMI VARIABLE 100KOHMX2
		SEMI-CODUCTORS
D 141	5380933	LED GL-451
D 201	5339131	DIODE 1SS254
D 202	5339131	DIODE 1SS254
D 203	5339131	DIODE 1SS254
D 204	5339131	DIODE 1SS254
D 205	5339131	DIODE 1SS254
D 206	5339131	DIODE 1SS254
D 207	5339131	DIODE 1SS254
D 208	5339131	DIODE 1SS254
D 209	5332781	DIODE 1SS254
D 301	5339131	DIODE 1SS254
D 302	5339131	DIODE 1SS254
D 303	5339131	DIODE 1SS254
D 401	5339131	DIODE 1SS254
D 402	5339131	DIODE 1SS254
D 501	5339131	DIODE 1SS254
D 503	5332781	DIODE 1SS254
D 504	5339131	DIODE 1SS254
D 506L	5339131	DIODE 1SS254
D 506R	5339131	DIODE 1SS254
D 507	5339131	DIODE 1SS254
D 508	5339131	DIODE 1SS254
D 509	5332781	DIODE 1SS254
D 510	5332781	DIODE 1SS254
D 512	5332781	DIODE 1SS254
D 513	5332781	DIODE 1SS254
D 601	5339131	DIODE 1SS254
D 602	5339131	DIODE 1SS254
D 603	5339131	DIODE 1SS254
D 604	5339131	DIODE 1SS254
D 605	5339131	DIODE 1SS254
D 607	5339131	DIODE 1SS254
D 608	5339131	DIODE 1SS254
D 609	5339131	DIODE 1SS254
D 610	5339131	DIODE 1SS254
D 612	5339131	DIODE 1SS254
D 615	5339131	DIODE 1SS254
D 616	5339131	DIODE 1SS254
D 617	5339131	DIODE 1SS254
D 618	5339131	DIODE 1SS254
D 619	5339131	DIODE 1SS254
D 620	5332681	DIODE 1SS119-P
D 627	5339131	DIODE 1SS254
D 636	5339131	DIODE 1SS254
D 701	5339131	DIODE 1SS254
D 702	5339131	DIODE 1SS254
D 703	5339131	DIODE 1SS254

SYMBOL-NO	P-NO	DESCRIPTION
D 704	5339131	DIODE 1SS254
D 705	5339131	DIODE 1SS254
D 706	5339131	DIODE 1SS254
D 707	5339131	DIODE 1SS254
D 708	5339131	DIODE 1SS254
D 709	5339131	DIODE 1SS254
D 711	5339131	DIODE 1SS254
D 713	5339131	DIODE 1SS254
D 714	5339131	DIODE 1SS254
D 715	5339131	DIODE 1SS254
D 716	5339131	DIODE 1SS254
D 718	5339131	DIODE 1SS254
D 719	5339131	DIODE 1SS254
D 721	5339131	DIODE 1SS254
D 722	5339131	DIODE 1SS254
D 726	5339131	DIODE 1SS254
D 727	5339131	DIODE 1SS254
D 728	5339131	DIODE 1SS254 (FOR AU)
D 729	5339131	DIODE 1SS254 (FOR AU)
D 734	5339131	DIODE 1SS254
D 735	5339131	DIODE 1SS254
D 736	5339131	DIODE 1SS254
D 752	5381211	LED SEL-2213C
D 753	5381211	LED SEL-2213C
D 754	5381211	LED SEL-2213C (FOR AU)
D 755	5381214	LED SEL-2213E (FOR AU)
D 757	5380691	LED SLR34UR
D 758	5381214	LED SEL-2213E
D 801	5339171	DIODE 1SS130
D 802	5339171	DIODE 1SS130
D 803	5339131	DIODE 1SS254 (FOR AU)
⚠ D 851	5333351	DIODE D3SBA10
⚠ D 852	5331921	DIODE S1WB10
⚠ D 853	5333351	DIODE D3SBA10
D 854	5339131	DIODE 1SS254
D 855	5339131	DIODE 1SS254
D 856	5339231	DIODE 1SR35-100A
D 857	5339231	DIODE 1SR35-100A
D 858	5339231	DIODE 1SR35-100A
D 859	5339231	DIODE 1SR35-100A
D 860	5339131	DIODE 1SS254
D 902	5339131	DIODE 1SS254
D 903	5339131	DIODE 1SS254
D 904	5339131	DIODE 1SS254
D 908	5339131	DIODE 1SS254
D 909	5339131	DIODE 1SS254
D 910	5339131	DIODE 1SS254
D 913	5339131	DIODE 1SS254
D 914	5339131	DIODE 1SS254
D 915	5339131	DIODE 1SS254
D 916	5339131	DIODE 1SS254
D 917	5339131	DIODE 1SS254
D 918	5339131	DIODE 1SS254
D 919	5339131	DIODE 1SS254
D 920	5339131	DIODE 1SS254
D 921	5339131	DIODE 1SS254
D1001	5339321	DIODE MA714
D1002	5328951	DIODE DAN202K
D1004	5339321	DIODE MA714
D1005	5328951	DIODE DAN202K
D1006	5328951	DIODE DAN202K
D1007	5328951	DIODE DAN202K
D1401	5339131	DIODE 1SS254
D1402	5339131	DIODE 1SS254
D1404	5339131	DIODE 1SS254
D1405	5339131	DIODE 1SS254
D1406	5339131	DIODE 1SS254
D1407	5339131	DIODE 1SS254
D1501	5339131	DIODE 1SS254
D1502	5339131	DIODE 1SS254
D1503	5339131	DIODE 1SS254
D1504	5339131	DIODE 1SS254
D1801	5339131	DIODE 1SS254 (FOR AU)
D1802	5339131	DIODE 1SS254 (FOR AU)
D2701	5339131	DIODE 1SS254
D2705	5339131	DIODE 1SS254
D2706	5339131	DIODE 1SS254
D2707	5339131	DIODE 1SS254

SYMBOL-NO	P-NO	DESCRIPTION
IC 141	5391282	IC DN6851
IC 142	5391282	IC DN6851
IC 201	5385087	MODULE HT4847F
IC 202	5385093	MODULE HT4848B
IC 203	5384632	MODULE HT4664A
IC 204	1387122	MODULE HES8020A
IC 301	5385481	MODULE HT4809
IC 351	5366641	IC BA7025L (FOR DSW)
IC 401	5300671	IC BA7720S
IC 402	5300701	IC M51131L
IC 403	5369181	IC M5218L
IC 404	5300771	IC M51659L
IC 405	5369181	IC M5218L
IC 451	5369181	IC M5218L
IC 452	5369181	IC M5218L
IC 501	5300861	IC HA12117NT
IC 502	5300641	IC BA7755
IC 503	5300871	IC HA12118NT
IC 504	5367771	IC BA4558
IC 507L	5366981	IC M5201L
IC 507R	5366981	IC M5201L
IC 509	5367771	IC BA4558
IC 601	1340011	IC HD49716NT
IC 602	5300821	IC M54874P
IC 603	5355584	IC HA13403
IC 604	1387231	MODULE BX7506
IC 605	5361531	IC MSM 5258RS
IC 606	5369431	IC LA7016
IC 701	5302275	IC M50954-674SP
IC 702	5301281	IC M58630P
IC 703	5361942	IC S-8053ALB
IC 801	5367341	IC LA7935
IC 802	5367221	IC BA6993
IC 851	5300452	IC STK5372H
IC 852	5367853	IC L780S05
IC 853	1341651	IC M5279L06
IC 901	5302308	IC HD614088SB99
IC 902	5300791	IC BA6209
IC 903	1387191	MODULE HES8029
IC 904	1388041	PWB ASSY VISS CONTROL (BX7570)
IC1001	5304921	IC TC74HC4053FP
IC1002	5304571	IC HA11535MP
IC1003	5367641	IC NJM2217L
IC1004	1341591	IC M51271SP
IC1005	5304931	IC M51272FP
IC1006	1341591	IC M51271SP
IC1007	5305281	IC M65011FP
IC1008	5305291	IC M50747FP
IC1009	5305271	IC NJU74HC157M
IC1010	5305271	IC NJU74HC157M
IC1011	1341601	IC M52678P
IC1012	1341601	IC M52678P
IC1013	5305261	IC NJU74HC153M
IC1014	5305261	IC NJU74HC153M
IC1015	5305261	IC NJU74HC153M
IC1016	5301491	IC M5M4C500L
IC1017	5301491	IC M5M4C500L
IC1018	5301491	IC M5M4C500L
IC1019	5305261	IC NJU74HC153M
IC1020	5305261	IC NJU74HC153M
IC1021	5305261	IC NJU74HC153M
IC1022	5305271	IC NJU74HC157M
IC1023	5305271	IC NJU74HC157M
IC1025	1341611	IC M52679P
IC1026	1341611	IC M52679P
IC1027	1341611	IC M52679P
IC1028	5304911	IC UPD74HC221AG
IC1029	5386063	MODUIL HT4683B
IC1030	5301011	IC HD14053BFP
IC1031	5300781	IC M51489L
IC1032	5361943	IC CS805S (S-8054ALR)
IC1401	5301254	IC M50455-003SP
IC1402	1340021	IC NJM2229S
IC1501	5369431	IC LA7016
IC1502	5369431	IC LA7016
IC1503	5369431	IC LA7016
IC1504	5369431	IC LA7016
IC1801	5366671	IC IR-3P02 (FOR AU)

SYMBOL-NO	P-NO	DESCRIPTION
IC1802	5364761	IC BA4560 (FOR AU)
IC1803	5367681	IC LA1150 (FOR AU)
IC2701	5306461	IC HD4074008F
Q 141	5324661	TRANSISTOR PT-483F1
Q 142	5324661	TRANSISTOR PT-483F1
Q 201	1320031	TRANSISTOR 2SC3391C
Q 202	5327062	TRANSISTOR 2SC1740SR(S OR R)
Q 203	5327062	TRANSISTOR 2SC1740SR(S OR R)
Q 204	5323901	TRANSISTOR 2SC1740S-R
Q 301	5324641	TRANSISTOR 2SA1374C
Q 401L	5323903	TRANSISTOR 2SC1740S-RS
Q 401R	5327063	TRANSISTOR 2SC1740 (S,RS)
Q 402	5327063	TRANSISTOR 2SC1740 (S,RS)
Q 403L	5327111	TRANSISTOR 2SC2784E
Q 403R	5327111	TRANSISTOR 2SC2784E
Q 404	5327084	TRANSISTOR RT1P441S
Q 501	5327073	TRANSISTOR DTC144ES
Q 502	5327031	TRANSISTOR 2SA673C
Q 503	5327062	TRANSISTOR 2SC1740SR(S OR R)
Q 504	5323563	TRANSISTOR DTC144F
Q 505L	5327111	TRANSISTOR 2SC2784E
Q 505R	5327111	TRANSISTOR 2SC2784E
Q 506	5324094	TRANSISTOR RT1P441S
Q 507	5327073	TRANSISTOR DTC144ES
Q 511	5327073	TRANSISTOR DTC144ES
Q 512	5327084	TRANSISTOR RT1P441S
Q 516	5321255	TRANSISTOR 2SA844CD
Q 517	5327141	TRANSISTOR 2SD468C
Q 518	5327021	TRANSISTOR 2SA844CD-TB
Q 519	5327111	TRANSISTOR 2SC2784E
Q 520	5327073	TRANSISTOR DTC144ES
Q 604	5327062	TRANSISTOR 2SC1740SR(S OR R)
Q 607	5327062	TRANSISTOR 2SC1740SR(S OR R)
Q 701	5327063	TRANSISTOR 2SC1740 (S,RS)
Q 704	5327063	TRANSISTOR 2SC1740 (S,RS)
Q 803	5327141	TRANSISTOR 2SD468C
Q 804	5327062	TRANSISTOR 2SC1740SR(S OR R)
Q 805	5327031	TRANSISTOR 2SA673C
Q 851	5327231	TRANSISTOR 2SC1741
Q 852	5327231	TRANSISTOR 2SC1741
Q 901	5327091	TRANSISTOR 2SD1504E
Q1001	5328971	TRANSISTOR 2SC2412KBRST
Q1002	5328971	TRANSISTOR 2SC2412KBRST
Q1003	5328961	TRANSISTOR 2SA1037KFRS
Q1004	5328961	TRANSISTOR 2SA1037KFRS
Q1005	5328971	TRANSISTOR 2SC2412KBRST
Q1006	5328961	TRANSISTOR 2SA1037KFRS
Q1007	5328971	TRANSISTOR 2SC2412KBRST
Q1008	5328971	TRANSISTOR 2SC2412KBRST
Q1009	5328971	TRANSISTOR 2SC2412KBRST
Q1010	5328971	TRANSISTOR 2SC2412KBRST
Q1012	5328961	TRANSISTOR 2SA1037KFRS
Q1014	5328961	TRANSISTOR 2SA1037KFRS
Q1015	5328961	TRANSISTOR 2SA1037KFRS
Q1016	5328961	TRANSISTOR 2SA1037KFRS
Q1017	5328961	TRANSISTOR 2SA1037KFRS
Q1018	5328971	TRANSISTOR 2SC2412KBRST
Q1019	5328971	TRANSISTOR 2SC2412KBRST
Q1020	5328971	TRANSISTOR 2SC2412KBRST
Q1021	5328971	TRANSISTOR 2SC2412KBRST
Q1022	5328971	TRANSISTOR 2SC2412KBRST
Q1023	5328791	TRANSISTOR DTC 124K(25)
Q1024	5328961	TRANSISTOR 2SA1037KFRS
Q1025	5328971	TRANSISTOR 2SC2412KBRST
Q1026	5328961	TRANSISTOR 2SA1037KFRS
Q1027	5328961	TRANSISTOR 2SA1037KFRS
Q1028	5328961	TRANSISTOR 2SA1037KFRS
Q1029	5328792	TRANSISTOR DTA124K(15)
Q1030	5328791	TRANSISTOR DTC 124K(25)
Q1031	5328961	TRANSISTOR 2SA1037KFRS
Q1032	5328961	TRANSISTOR 2SA1037KFRS
Q1034	5326104	TRANSISTOR FMW2
Q1035	5326101	TRANSISTOR FMW1
Q1036	5328971	TRANSISTOR 2SC2412KBRST
Q1038	5328961	TRANSISTOR 2SA1037KFRS
Q1039	5328961	TRANSISTOR 2SA1037KFRS
Q1040	5328791	TRANSISTOR DTC 124K(25)
Q1041	5328971	TRANSISTOR 2SC2412KBRST

SYMBOL-NO	P-NO	DESCRIPTION
Q1042	5328791	TRANSISTOR DTC 124K(25)
Q1043	5328791	TRANSISTOR DTC 124K(25)
Q1044	5328793	TRANSISTOR DTC144K-26
Q1045	5328793	TRANSISTOR DTC144K-26
Q1046	5328791	TRANSISTOR DTC 124K(25)
Q1047	5328793	TRANSISTOR DTC144K-26
Q1048	5328795	TRANSISTOR DTA144EK-16
Q1050	5328971	TRANSISTOR 2SC2412KBRST
Q1052	5328795	TRANSISTOR DTA144EK-16
Q1053	5328795	TRANSISTOR DTA144EK-16
Q1055	5328795	TRANSISTOR DTA144EK-16
Q1191	5328793	TRANSISTOR DTC144K-26
Q1192	5328793	TRANSISTOR DTC144K-26
Q1193	5328792	TRANSISTOR DTA124K(15)
Q1194	5328792	TRANSISTOR DTA124K(15)
Q1401	5324631	TRANSISTOR 2SA1390C
Q1402	5327062	TRANSISTOR 2SC1740SR(S OR R)
Q1403	5321292	TRANSISTOR 2SC1740S
Q1404	5327071	TRANSISTOR DTC124ES
Q1405	5327073	TRANSISTOR DTC144ES
Q1407	5327062	TRANSISTOR 2SC1740SR(S OR R)
Q1408	5327073	TRANSISTOR DTC144ES
Q1501	5327062	TRANSISTOR 2SC1740SR(S OR R)
Q1530	5324631	TRANSISTOR 2SA1390C
Q1531	5324631	TRANSISTOR 2SA1390C
Q1532	5327062	TRANSISTOR 2SC1740SR(S OR R)
Q1590	5324631	TRANSISTOR 2SA1390C
Q1651	5323421	TRANSISTOR 2SD1276
Q1801	5327062	TRANSISTOR 2SC1740SR(FOR AU)
Q1802	5327062	TRANSISTOR 2SC1740SR(FOR AU)
Q1803	5327062	TRANSISTOR 2SC1740SR(FOR AU)
Q1804	5327062	TRANSISTOR 2SC1740SR(FOR AU)
Q1805	5327062	TRANSISTOR 2SC1740SR(FOR AU)
Q1806	5327062	TRANSISTOR 2SC1740SR(FOR AU)
QR 201	5327081	TRANSISTOR RT1N241S
QR 202	5327081	TRANSISTOR RT1N241S
QR 203	5327081	TRANSISTOR RT1N241S
QR 204	5327081	TRANSISTOR RT1N241S
QR 301	5327081	TRANSISTOR RT1N241S
QR 302	5327081	TRANSISTOR RT1N241S
QR 601	5327073	TRANSISTOR DTC144ES
QR 602	5327073	TRANSISTOR DTC144ES
QR 603	5327073	TRANSISTOR DTC144ES
QR 605	5327073	TRANSISTOR DTC144ES
QR 608	5327073	TRANSISTOR DTC144ES
QR 609	5327073	TRANSISTOR DTC144ES
QR 611	5327073	TRANSISTOR DTC144ES
QR 701	5327084	TRANSISTOR RT1P441S (FOR AU)
QR 702	5327082	TRANSISTOR RT1N441S
QR 703	5327082	TRANSISTOR RT1N441S
QR 901	5327073	TRANSISTOR DTC144ES
QR 902	5327073	TRANSISTOR DTC144ES
QR1501	5327074	TRANSISTOR DTA144ES-T
QR1502	5327073	TRANSISTOR DTC144ES
QR1590	5327073	TRANSISTOR DTC144ES (FOR AU)
QR1801	5327081	TRANSISTOR RT1N241S
QR2701	5323563	TRANSISTOR DTC144F
ZD 351	5330394	DIODE HZ6A2 (FOR DSW)
ZD 401	5339272	DIODE HZS6-A3
ZD 402	5339272	DIODE HZS6-A3
ZD 403	5339272	DIODE HZS6-A3
ZD 501	5330325	DIODE HZ9A2 SI 0.4W
ZD 502	5330325	DIODE HZ9A2 SI 0.4W
ZD 503	5339257	DIODE HZS4
ZD 701	5330322	DIODE HZ9B
ZD 702	5331588	DIODE RD2.7E-B2
ZD 801	5366151	IC UPC574J
ZD 802	5339256	DIODE HZS30
ZD 851	5339101	DIODE HZ7B2
ZD 852	5339101	DIODE HZ7B2
ZD 901	5339271	DIODE HZS9A2
ZD 902	5339262	DIODE HZS6-C2
ZD 903	5339262	DIODE HZS6-C2
ZD1651	5339274	DIODE HZS15-3
		TRANSFORMER
T 501	5261352	OSC COIL

SYMBOL-NO	P-NO	DESCRIPTION
T 502	5261351	COIL,OSC
		COILS
L 201	5159077	CHOKE COIL 100UH+-10%
L 202	5153037	CHOKE COIL 33UH+-5% 4
L 203	5159077	CHOKE COIL 100UH+-10%
L 204	5159153	CHOKE COIL 82UH
L 205	5159071	CHOKE COIL 33UH+-10%
L 206	5159151	CHOKE COIL 56UH
L 207	5159077	CHOKE COIL 100UH+-10%
L 208	5159077	CHOKE COIL 100UH+-10%
L 209	5159077	CHOKE COIL 100UH+-10%
L 210	5159151	CHOKE COIL 56UH
L 211	5159082	CHOKE COIL 220UH+-10%
L 212	5159077	CHOKE COIL 100UH+-10%
L 213	5153038	CHOKE COIL 39UH
L 301	5159113	CHOKE COIL 8.2MH
L 304	5159151	CHOKE COIL 56UH
L 305	5159148	CHOKE COIL 39UH
L 306	5159146	CHOKE COIL 27UH
L 307	5159089	CHOKE COIL 820UH+-10%
L 308	5159158	CHOKE COIL 220UH
L 309	5159082	CHOKE COIL 220UH+-10%
L 310	5153033	CHOKE COIL 15UH
L 311	5153031	CHOKE COIL 10UH
L 352	5130431	COIL (FOR DSW)
L 401L	5130421	COIL 2.4MH
L 401R	5130421	COIL 2.4MH
L 501	5159077	CHOKE COIL 100UH+-10%
L 502	5152623	CHOKE COIL 15000UH
L 503	5152623	CHOKE COIL 15000UH
L 504	5159081	CHOKE COIL 180UH+-10%
L 505	5159154	CHOKE COIL 100UH
L 506	5159111	CHOKE COIL 5600UH
L 702	5152349	CHOKE COIL 820UH
⚠ L 851	5273341	LINE FILTER (FOR AU)
L 901	5159077	CHOKE COIL 100UH+-10%
L1002	5152607	CHOKE COIL 100UH+-10%
L1003	5152607	CHOKE COIL 100UH+-10%
L1005	5152607	CHOKE COIL 100UH+-10%
L1006	5152607	CHOKE COIL 100UH+-10%
L1008	5152607	CHOKE COIL 100UH+-10%
L1009	5159231	COIL 100UH+-10%
L1010	5159232	COIL 12UH+-10%
L1013	5159231	COIL 100UH+-10%
L1014	5152607	CHOKE COIL 100UH+-10%
L1015	5152607	CHOKE COIL 100UH+-10%
L1016	5152607	CHOKE COIL 100UH+-10%
L1017	5152607	CHOKE COIL 100UH+-10%
L1018	5152607	CHOKE COIL 100UH+-10%
L1020	5152607	CHOKE COIL 100UH+-10%
L1021	5152607	CHOKE COIL 100UH+-10%
L1022	5152607	CHOKE COIL 100UH+-10%
L1023	5152607	CHOKE COIL 100UH+-10%
L1024	5152607	CHOKE COIL 100UH+-10%
L1401	5159077	CHOKE COIL 100UH+-10%
L1402	5159077	CHOKE COIL 100UH+-10%
L1403	5159077	CHOKE COIL 100UH+-10%
L1404	5153037	CHOKE COIL 33UH+-5%
L1405	5159073	CHOKE COIL 47UH+-10%
L1406	5159071	CHOKE COIL 33UH+-10%
L1501	5159077	CHOKE COIL 100UH+-10%
L1502	5159077	CHOKE COIL 100UH+-10%
L1530	5159077	CHOKE COIL 100UH+-10%
L1591	5159077	CHOKE COIL 100UH+-10%
L1630	5159154	CHOKE COIL 100UH
L1801	5152325	CHOKE COIL 12UH (FOR AU)
L1802	5152326	CHOKE COIL 15UH+-10% (FOR AU)
		CRYSTALS
X 701	5781581	CRYSTAL 4MHZ
X 702	5783001	CRYSTAL 32.768KHZ
X1001	5782832	CRYSTAL 17.7MHZ
X1002	5782832	CRYSTAL 17.7MHZ
X1003	5781981	CRYSTAL 8.0MHZ
X1004	5782851	CRYSTAL 20MHZ
X1005	5781782	CRYSTAL 500KHZ
X1401	5780821	CRYSTAL 17.7MHZ
X1402	5781782	CRYSTAL 500KHZ
X1630	5780652	CRYSTAL 3.58MHZ
X2701	5781981	CRYSTAL 8.0MHZ
		MISCELLANEOUS
BL 501	5272375	LINE FILTER
BL 502	5272375	LINE FILTER
BL 503	5272375	LINE FILTER
BL 504	5272375	LINE FILTER
BL1001	5272371	LINE FILTER
BL1002	5272371	LINE FILTER
BZ1501	5409272	BUZZER
CE 901	5781591	CRYSTAL 4MHZ
CF1801	5160562	FILTER (FOR AU)
CF1802	5160561	FILTER (FOR AU)
CP 201	5163301	FILTER,TRAP 4.4MHZ
CP 202	5163341	LC DELAY
CP 203	5163311	TRAP COIL 4.43MHZ
CP 204	5169003	LOW PASS FILTER 3.6MHZ
CP 301	5163082	BAND PASS FILTER 4.43MHZ
CP 302	5785388	DELAY LINE
CP 351	5160431	BAND PASS FILTER (FOR DSW)
CP 401L	5163021	LOW PASS FILTER
CP 401R	5163021	LOW PASS FILTER
CP 502	5163103	BAND PASS FILTER
CP 503	5163104	BAND PASS FILTER
CP 504	5163103	BAND PASS FILTER
CP1001	5162973	BAND PASS FILTER 4MHZ
CP1002	5162973	BAND PASS FILTER 4.43MHZ
CP1003	5163112	LOW PASS FILTER 3MHZ
CP1004	5163112	LOW PASS FILTER 3MHZ
CP1005	5163112	LOW PASS FILTER 3MHZ
CP1006	5163711	DELAY LINE
CP1007	0239053	LOW PASS FILTER
CP1008	0239053	LOW PASS FILTER
CP1009	0239053	LOW PASS FILTER
CP1019	0239054	LINE FILTER
CP1021	0239054	LINE FILTER
CP1024	0239054	LINE FILTER
CP1025	0239054	LINE FILTER
CP1026	0239054	LINE FILTER
CP1028	0239054	LINE FILTER
CP1029	0239054	LINE FILTER
CP1030	0239054	LINE FILTER
CP1031	0239054	LINE FILTER
CP1032	0239054	LINE FILTER
CP1037	0239054	LINE FILTER
CP1038	5163701	3MHZ DELAY
CP1501	5163204	COIL DELAY LINE
CP1801	5124098	BAND PASS FILTER (FOR AU)
CP1802	5124098	BAND PASS FILTER (FOR AU)
CP1803	5120921	COIL 55KHZ (E) (FOR AU)
CP1804	5160551	FILTER (FOR AU)
CP1805	5124098	BAND PASS FILTER (FOR AU)
DG 701	5315031	DISPLAY
⚠ F 850	5720179	FUSE 1A
⚠ F 851	5721064	FUSE
⚠ F 852	5721061	FUSE 1.6A
⚠ F 853	5720171	FUSE 315MA
IR 701	5477541	MODULE GP1U521H
J1501	5691001	CONNECTOR
J1502	5694611	CONNECTOR
LV 701	5317102	LEVEL METER
QF 801	5721941	IC PROTECTOR
QF 802	5721941	IC PROTECTOR
S 141	5635321	SWITCH
S 142	5635331	SWITCH
S 701	5635061	SWITCH
S 702	5635061	SWITCH
S 703	5635061	SWITCH
S 704	5635061	SWITCH
S 705	5635061	SWITCH
S 706	5635061	SWITCH
S 707	5635061	SWITCH
S 708	5635061	SWITCH

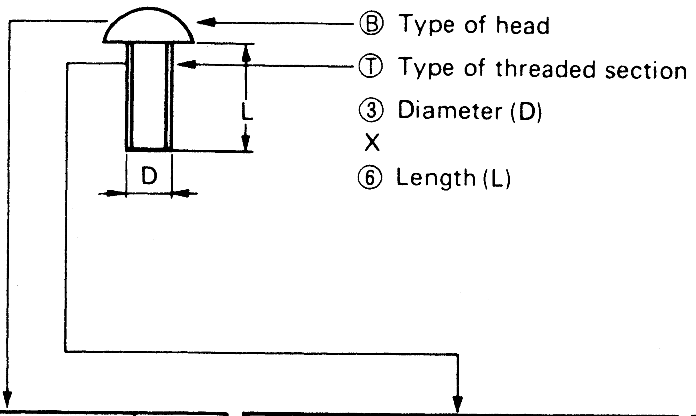
SYMBOL-NO	P-NO	DESCRIPTION
S 709	5635061	SWITCH
S 710	5635061	SWITCH
S 711	5635061	SWITCH
S 712	5635061	SWITCH
S 713	5635061	SWITCH
S 714	5635061	SWITCH
S 715	5635061	SWITCH
S 716	5635061	SWITCH
S 717	5635061	SWITCH
S 718	5635061	SWITCH
S 720	5635061	SWITCH (FOR AU)
S 722	5635061	SWITCH
S 723	5635061	SWITCH
S 724	5635061	SWITCH
S 725	5635061	SWITCH
S 726	5635061	SWITCH
S 728	5635061	SWITCH
S 733	5635061	SWITCH
S 737	5635061	SWITCH
S 751	5635061	SWITCH
S 752	5622183	SWITCH
S 755	5621441	SWITCH
S 756	5622183	SWITCH
S 757	5622183	SWITCH
S 758	5622183	SWITCH
⚠ S 850	5605343	SWITCH (FOR DSW)
S1501	5622562	SWITCH
S1502	5622562	SWITCH
S1503	5622562	SWITCH (FOR DSW)

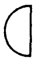
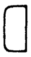
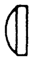
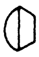
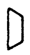
SYMBOL-NO	P-NO	DESCRIPTION

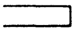
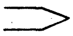
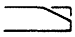
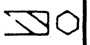
EXPLODED VIEWS

SCREW CLASSIFICATION

Example: BT3 × 6



Abbre-viation	Name	Shape
No symbol	Brazier head	
P	Pan head	
B	Binding head	
O	Oval countersunk head	
F	Flat countersunk head	

Abbre-viation	Name	Shape
No symbol	Machine (clamps without tapping)	
t	Tapping (clamps with tapping) Type 1	
T	Tapping (clamps with tapping) Type 2	
f	Forming tight (for metal)	
Note	Since the forming tight screw tightens while self-tapping machine screws can be replaced by tapping screws.	

Washers and Nuts

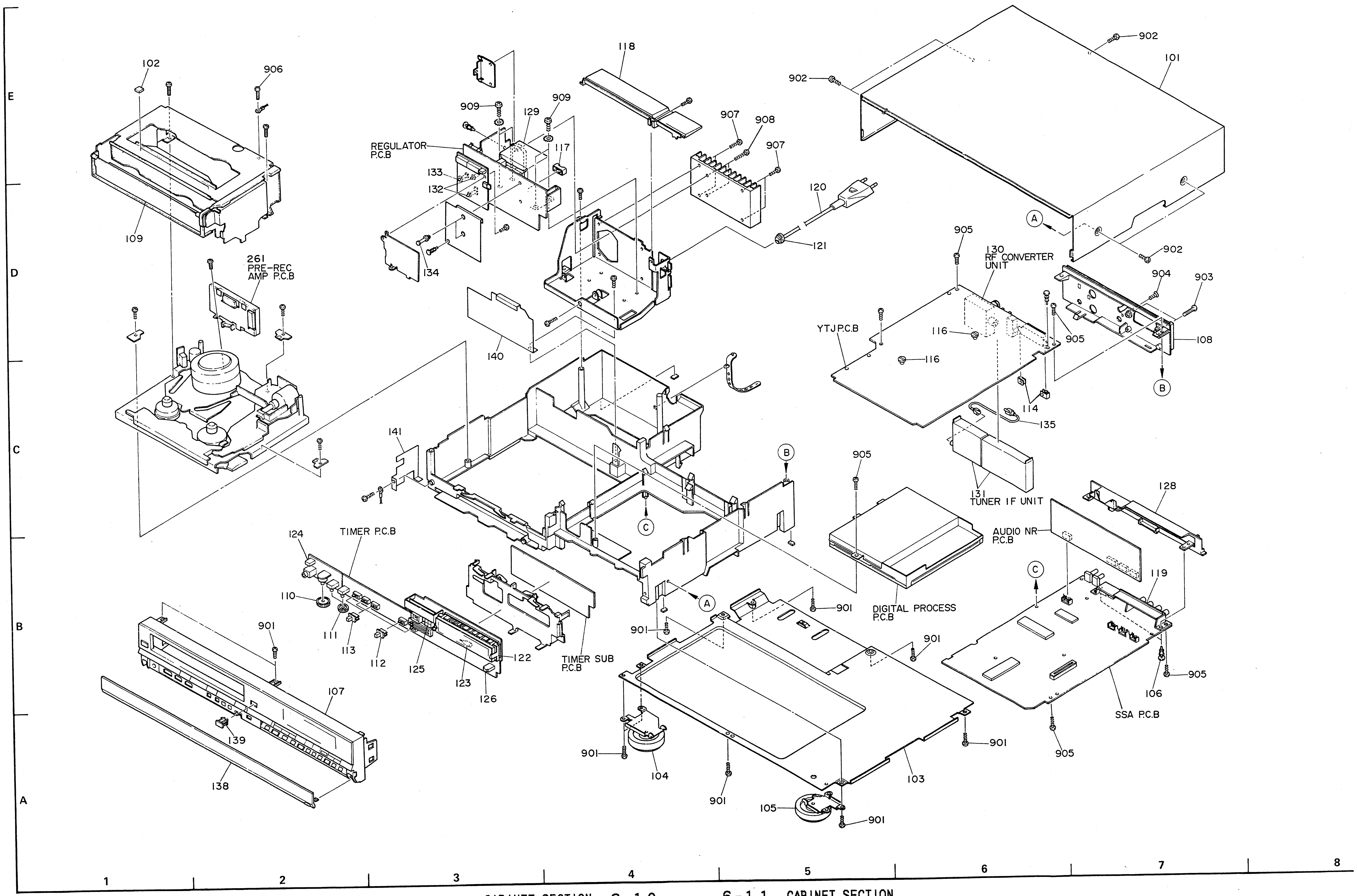
Abbre-viation	Name	Shape
W SW LW	Washer Spring washer Locking washer	
E	E-ring	
N	Nut	
Note	Internal dia is indicated for nuts and washers.	

LUBRICATION

Lubrication points are shown in the exploded view diagrams by marks (Ⓢ, Ⓗ)
Lubricants shown in the diagram are as follows.

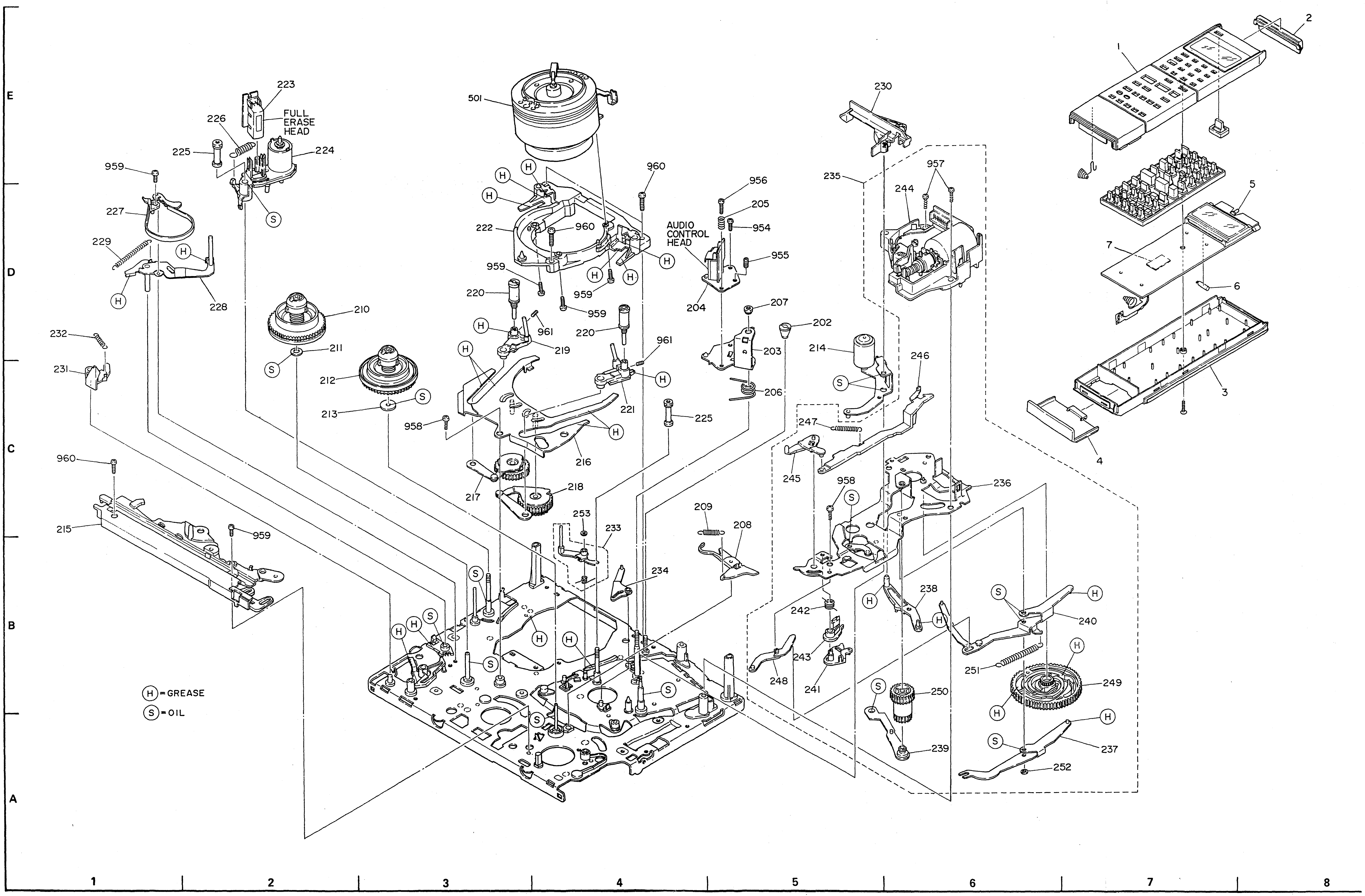
Ⓢ Sonic slider oil (# 1600)
Ⓗ Hitazol (MO-138)

CABINET SECTION

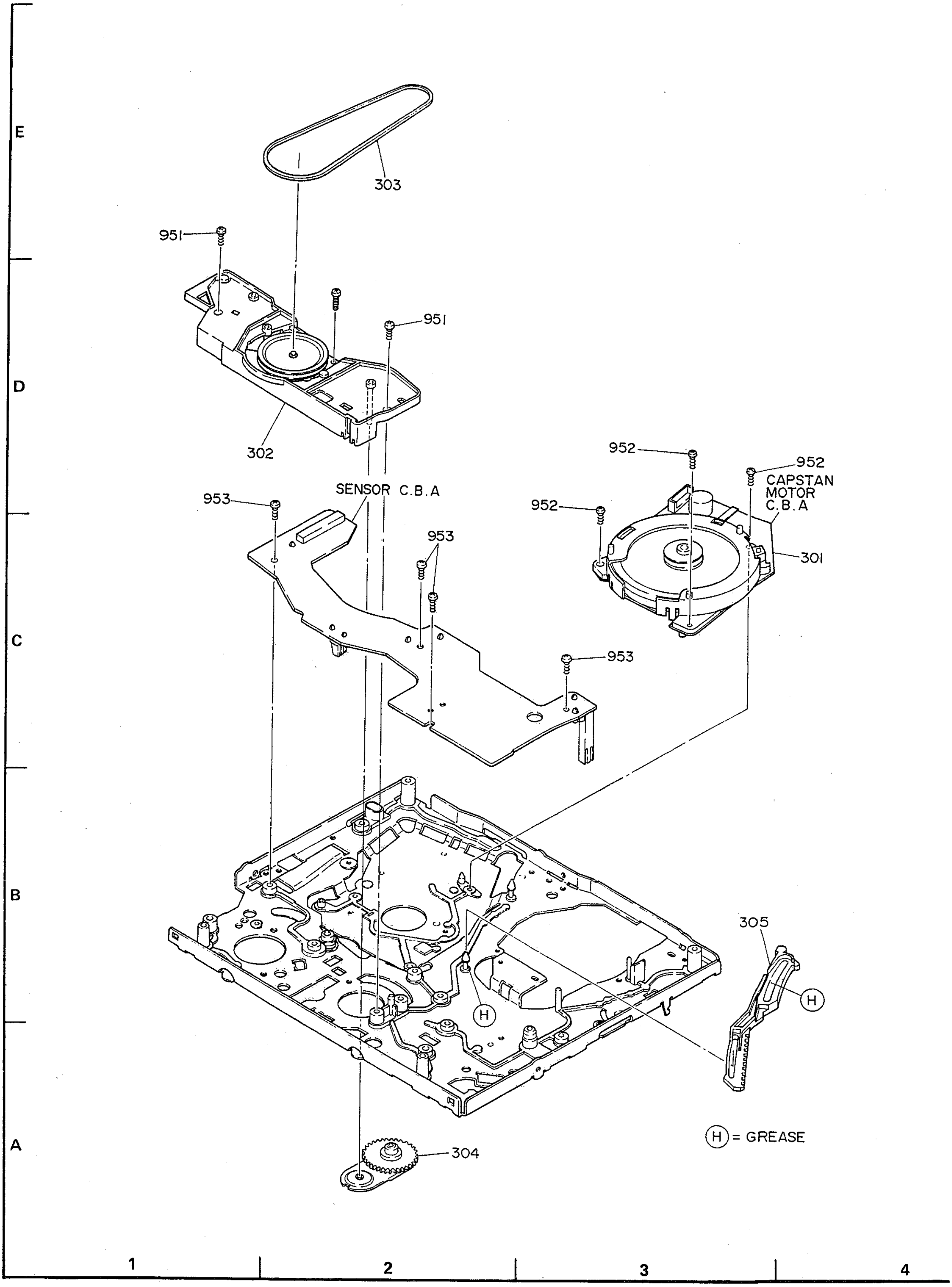


E
D
C
B
A
1
2
3
4
5
6
7
8
102
906
109
261
PRE-REC
AMP P.C.B
118
909
129
909
REGULATOR
P.C.B
117
133
132
134
140
907
908
907
120
121
902
101
902
902
A
905
130
RF CONVERTER
UNIT
904
903
YTJ P.C.B
116
116
905
108
B
114
135
141
B
905
131
TUNER IF UNIT
128
C
AUDIO NR
P.C.B
C
119
124
TIMER P.C.B
110
111
113
112
125
123
126
122
TIMER SUB
P.C.B
A
901
901
DIGITAL PROCESS
P.C.B
901
901
107
139
138
901
104
901
103
901
105
901
106
905
SSA P.C.B
905

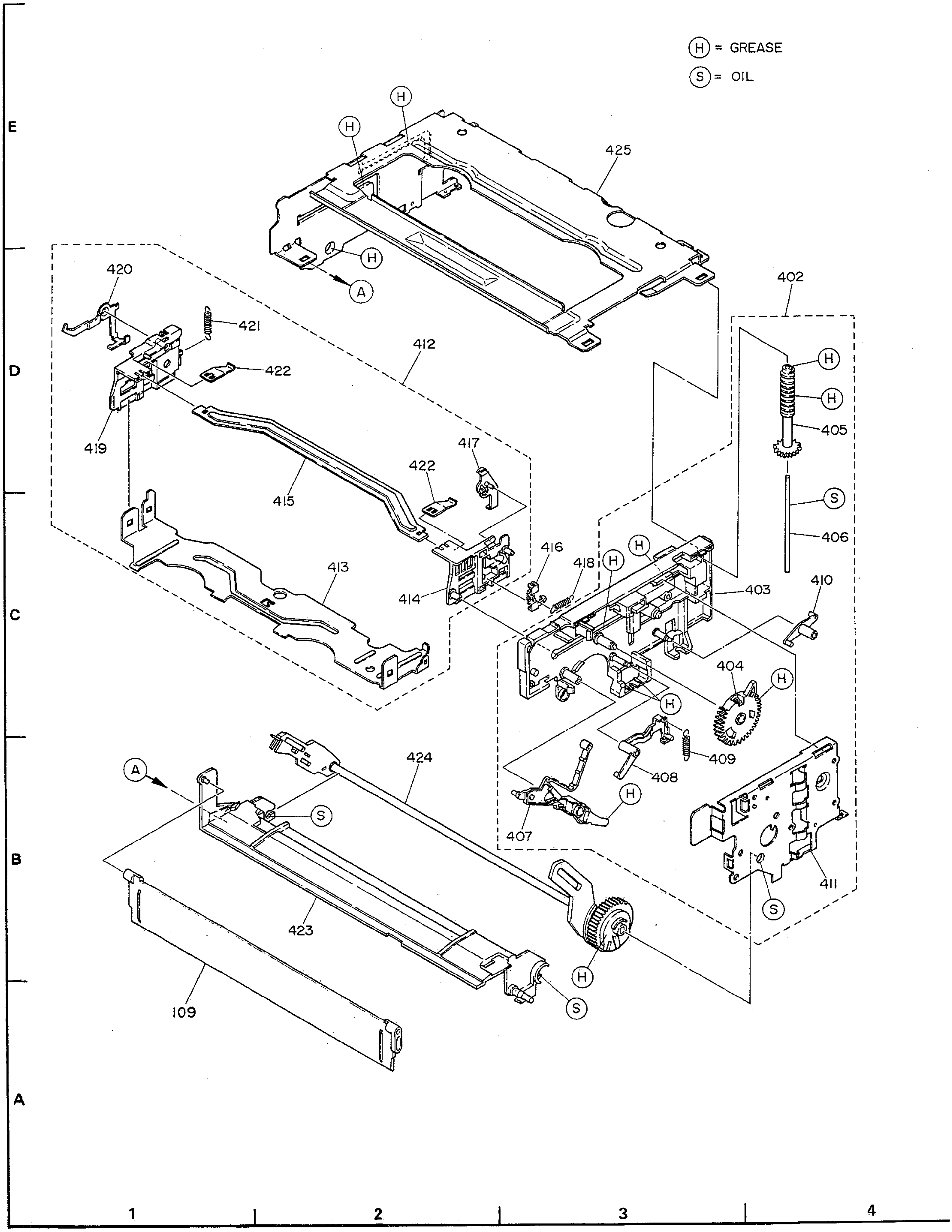
CHASSIS (I) SECTION


E
D
C
B
A
1
2
3
4
5
6
7
8
223
FULL ERASE HEAD
226
225
224
959
227
229
228
232
231
960
215
959
210
211
212
213
501
H
960
222
959
959
959
220
961
219
220
961
221
958
216
217
218
253
233
234
225
AUDIO CONTROL HEAD
956
205
954
955
204
207
202
203
206
209
208
230
235
957
244
214
246
247
245
958
236
238
242
243
241
248
240
251
249
250
239
237
252
1
2
5
7
6
3
4
H = GREASE
S = OIL

CHASSIS (II) SECTION


E
D
C
B
A
303
951
951
302
SENSOR C.B.A
953
953
953
952
952
952
CAPSTAN MOTOR C.B.A
301
305
H
H
304
H = GREASE
1
2
3
4

CASSETTE LOADING MECHANISM SECTION



Ⓗ = GREASE
Ⓢ = OIL
E
D
C
B
A
1
2
3
4
425
Ⓗ
Ⓐ
420
421
422
412
419
417
415
413
414
416
418
402
405
406
403
410
404
409
408
407
411
424
423
109

6-15 CASSETTE LOADING MECHANISM SECTION

SYMBOL-NO	P-NO	DESCRIPTION
		FOR FINAL ASSEMBLY
101	6003485	COVER,TOP
102	7741445	FELT
103	6003504	COVER,BOTTOM
104	6064753	INSULATOR
105	6064763	INSULATOR
106	6714211	NYLON RIVET - 3MMD
107	6232622	PANEL,FRONT(FOR AU)
107	6232621	PANEL,FRONT(FOR DSW)
108	6230257	PANEL,REAR(FOR AU)
108	6230254	PANEL,REAR(FOR DSW)
109	6176642	DOOR,CASSETTE
110	6077291	ROTARY KNOB
111	6077293	KNOB
112	6078481	KNOB,SLIDE
113	6078931	KNOB,SLIDE
114	7417001	BRACKET
116	6800971	STUD
117	6753911	FUSE COVER
118	6231081	PIECE,REAR
119	5690315	PLATE,JACK
⚠ 120	5746781	POWER CORD(FOR AU)
⚠ 120	5850791	POWER,CORD(FOR DSW)
⚠ 121	6794591	BUSHING
122	6800781	HOLDER,DISPLAY
123	6869311	COVER
124	6800201	HOLDER,LED
125	6229771	LED HOLDER
126	6878961	LED HOLDER
128	6229507	PANEL,REAR
⚠ 129	5214055	TRANSFORMER,POWER(FOR AU)
⚠ 129	5214054	TRANSFORMER,POWER(FOR DSW)
130	5589131	RF CONVERTER(FOR AU)
130	5589121	RF CONVERTER(FOR DSW)
131	5588251	TUNER IF UNIT(FOR AU)
131	5588241	TUNER IF UNIT(FOR DSW)
132	6800081	CBA SUPPORT
133	6800091	CBA SUPPORT
134	6800092	SUPPORTER,PWB
135	5885982	CABLE,PLUG
138	6231711	DOOR,CONTROL
139	6063641	BUTTON,EJECT
140	7493692	SHIELD PLATE
141	7448441	BRACKET
202	6911101	SCREW
203	7412852	BASE-ACE HEAD
204	5446631	HEAD-AUDIO CONTROL
205	6304906	SPRING
206	6522752	SPRING
207	7785673	NUT
208	6896912	BRAKE
209	6555501	SPRING
210	6415532	REEL,SUPPLY
211	7789123	POLYSLIDER WASHER
212	6415542	REEL-TAKE UP
213	7789122	POLYSLIDER WASHER
214	6975761	PRESSER ROLLER
215	6804273	BLOCK,SLIDER
216	7412822	PLATE
217	7412816	GEAR,LOADING (L)
218	7412806	GEAR,LOADING (R)
219	6975743	GUIDE ROLLER BASE (IN)
220	6344741	GUIDE ROLLER
221	6975732	GUIDE ROLLER BASE (OUT)
222	6911001	BASE,CYLINDER
223	5446641	HEAD-FULL ERASE
224	6897473	ARM,IMPEDANCE
225	4508235	GUIDE
226	6555431	SPRING
227	7413665	HOLDER-BAND
228	7412863	ARM
229	6555444	SPRING
230	6897264	HOLDER
231	6896751	ARM
232	6555061	SPRING
233	6976371	ARM
234	6898472	ARM,IDLE
235	7429672	BRACKET
236	7398631	BRACKET
237	7412881	ARM
238	6976551	ARM
239	7412892	ARM
240	7428072	ARM,OPERATION
241	6897241	ARM
242	6551151	SPRING
244	6896894	HOLDER,MOTOR
245	6896852	ARM
246	6897251	ARM
247	6555483	SPRING
248	6897271	ARM
249	6897065	GEAR,MODE
250	6434861	WORM WHEEL
251	6555052	SPRING
252	7799012	WASHER
253	7786623	POLYSLIDER WASHER
261	5385931	PWB ASSY PRE AMP/HEAD SW
301	5571382	MOTOR,CAPSTAN
302	6896951	CULUTCH BASE ASSY
303	6351554	FELT
304	6897094	ARM,FF/REW
305	6434851	RACK
402	7412574	BRACKET,SIDE(R)
403	6896685	BRACKET,SIDE(R)
404	6896971	WORM WHEEL ASSY
405	6435571	WORM
406	4508221	WORM SHAFT
407	6896632	ARM-SWITCH
408	6897041	ARM-SWITCH
409	6302474	SPRING
410	6896623	ARM,DOOR
411	7412583	BRACKET-GEAR
412	7412562	HOLDER,CASSETTE
413	7412595	HOLDER BASE,CASSETTE
414	6896664	HOLDER,CASSETTE (R)
415	7428113	HOLDER,STAY
416	6897531	ARM
417	6897001	ARM
418	6555043	SPRING
419	6896673	HOLDER,CASSETTE (L)
420	7412944	ARM
421	6555771	SPRING
422	7412952	SPRING
423	6896653	HOLDER-FRONT
424	4508212	SHAFT
425	7412551	BRACKET-SIDE (L)
501	5436015	CYLINDER ASSY
901	8699410	SCREW (3X14) BLACK
902	7784428	SCREW (M3)
903	8744412	BINDING SCREW 3MMDX12MM
904	7781582	FALT SCREW-3MMDX10MM(BLACK)
905	8699412	SCREW (3X12) BLACK
906	8691406	3X6 BT BIND SCREW
907	8691408	SCREW (3X8)
908	8691416	SCREW 3X16 BT
909	7785351	SCREW (4X14)
951	8691410	SCREW
952	8691310	SCREW
953	8699408	SCREW
954	7781872	SCREW-3MMDX8MM
955	7773086	SCREW
956	8741414	SCREW (3X14)
957	8691412	SCREW (3X12)
958	8691408	SCREW (3X8)
959	8741408	SCREW (B3X8)
960	8741412	SCREW (B3X12)
961	7785941	SCREW
		FOR ACCESSARIES
	5898876	CONNECTER CORD
	5747741	CONNECTOR CORD
	5618601	REMOTE CONTROL BOX
	5652291	BOCKET ADAPTER

SYMBOL-NO	P-NO	DESCRIPTION
		FOR REMOTE CONTROLLER UNIT
1	5618701	UPPER CASE
2	5618702	CLEAR PLATE
3	5618703	BTTOM CASE
4	5618704	BATTERY LID
5	5618705	LED SLR9380
6	5618706	CRYSTAL 32.768KHZ
7	5302015	REMOCON UPM50930.608P

SYMBOL-NO	P-NO	DESCRIPTION